



City of Duluth

*Request for Proposals #10-24DS
Port Security Camera System with Wireless Communications*

August 9, 2010

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SECTION 00 01 15 – LIST OF DRAWINGS

Drawing Name	Drawing Number	Date
General	T100 - Title/Index	
Details	T300 – Camera/Node Locations	
	T301 – Connectivity Diagram	
	T302 – Camera Detail & CCTV Logical Diagram	
	T303 – Lift Bridge Detail	

END OF SECTION

SECTION 00 11 13 - ADVERTISEMENT

1.01 CITY OF DULUTH - ADVERTISEMENT FOR PROPOSALS

Sealed proposals will be received by the City of Duluth, Minnesota for RFP #10-24DS for the provision and installation of a Port Security camera system with wireless communications.

There will be a MANDATORY Pre-Proposal Meeting on August 19, 2010 starting at 9:00 AM at Duluth City Hall Room 405, 411 1st Street, Duluth, MN 55802. Any entity that wishes to submit a proposal must have at least one representative present at this Pre-Proposal Meeting.

Responses will be due **by 2:00 PM on August 30, 2010**. Responses received after that time will be returned unopened.

Documents containing responses must be sealed and marked with the Proposer's name and "Response to RFP#10-24DS Port Security Camera System for City of Duluth". No faxed responses will be accepted.

Three (3) sealed written responses (1 original and 2 copies) and one (1) electronic copy (CD/DVD) must be delivered as follows:

Original (with bond) and One Written Copy:	One Written Copy and One Electronic version (on CD or DVD):
Mr. Dennis Sears Purchasing Agent City of Duluth Purchasing Office City Hall Room #100 411 West 1 st Street Duluth, MN 55802 (218) 730-5003	Elert & Associates Attn: Wendy Chretien 140 Third Street South Stillwater, MN 55082 (651) 705-1227

Copies of the specifications may be obtained from the City of Duluth website at http://www.duluthmn.gov/purchasing/bid_information.cfm

The City of Duluth reserves the right to accept any proposal or reject any or all proposals or parts of such proposals, and waive formalities or irregularities in the competitive acquisition process.

Dennis Sears, Purchasing Agent
City of Duluth

END OF SECTION

SECTION 00 11 19 – REQUEST FOR PROPOSAL

1.01 PURPOSE AND BACKGROUND

- A. The City of Duluth is hereby soliciting proposals to provide and implement a turn-key outdoor video surveillance system to enhance security at and around the Port of Duluth. The primary objectives of this Port Security initiative are the installation of video cameras in the port area to provide situational awareness of maritime activities, and to record video for intelligence sharing and analysis.

1.02 REFERENCE

- A. Refer to Section 00 21 16 for instructions regarding responding to this Request.
- B. Refer to Section 00 42 00 for the Response Form to complete and return with your response.
- C. Refer to Divisions 27 and 28 for all technical specifications.

END OF SECTION

SECTION 00 21 16 – INSTRUCTIONS TO PROPOSERS

1.01 EXAMINATION OF SITE AND DOCUMENTS

- A. Proposers shall examine all documents, shall visit the site(s) and record their own investigations, and shall inform themselves of all conditions under which the Work is to be performed at the site(s) of the Work, the structure of the ground, the obstacles that may be encountered, all conditions of the documents including superintendence of the Work, the requirements of temporary environmental controls, the time of completion, the list of subcontractors, and all other relevant matters that may affect the Work or the proposal process.
- B. Failure to make the examination shall not result in any change order requests.
- C. Proposers shall base their proposal on materials complying with the plans and specifications, and shall list all materials where the proposal form requires.

1.02 PREVAILING WAGE

- A. The Contractor must be in compliance with all State and Federal wage rates. Please refer to Minnesota Department of Labor and Industry Prevailing Wage rates for St. Louis County, Minnesota.

1.03 PROPOSAL SECURITY/BOND

- A. Each proposal shall be accompanied by a proposal bond in the sum of not less than 5% of the total proposal amount made payable to Owner, conditioned upon the Proposer entering into a contract with Owner in accordance with the terms of their proposal. Any bonding company used must be licensed in the state of Minnesota.
- B. It is agreed that the proposal security will constitute liquidated damages, and not a penalty, for the failure or refusal of the Contractor to execute and deliver the contractual documents, in a correct form, within ten (10) days after receipt of the contractual documents.
- C. This proposal security shall be returned within 30 days after the proposal opening or, in the event of a successful proposal, return shall be made after the proper posting of the required performance bond.
- D. Proposer shall use an AIA or other standard proposal bond form.

1.04 PREPARATION OF PROPOSAL

- A. The Proposer shall submit the proposal on the furnished form(s). The blank spaces on the proposal form—and any questionnaires that may be attached to the proposal—must be filled in correctly in ink. Pencil is unacceptable. A

proposal containing an alteration or erasure of any price contained in the proposal, which is used in determining the lowest responsible proposal, may be rejected unless the alteration or erasure is corrected as herein provided.

- B. An alteration or erasure may be crossed out and the correction printed in ink or typewritten adjacent to it and initialed in ink by the person signing the proposal. In the event that any price used in determining the lowest responsible proposal is expressed in both written and numerical form, the written representation shall govern all cases.
- C. If the Design and Specifications include alternates, each proposal shall include each alternate. Proposals that fail to include each alternate may be rejected.
- D. The Proposer must submit with her/his proposal all catalogues, drawings, specifications, descriptive information, and other details of equipment or materials included in their proposal but not specifically named by manufacturer and model number in this specification, so that the merits of the various designs may be determined by the Consultant. Failure to comply may be cause for rejection.
- E. Proposal must contain the signature of an authorized agent empowered to bind the Proposer in a contract.
- F. The mention in writing or representation by depiction of materials, services, or operations within the specification documents and/or Proposal package is binding upon the Contractor to provide and install such items, services, and operations without additional charge to Owner. Exceptions will be noted by the acronym NIC (for Not In Contract) or OFE (Owner Furnished Equipment). If this notation does not appear, then the Contractor shall assume the need to provide the item in question.
- G. The Contractor will receive no allowances because of omissions in work due to unfamiliarity or their misunderstanding of Proposal package details or construction documents.
- H. The submission of proposals shall be deemed evidence of the Contractor's knowledge, review, and examination of construction documents, drawings, specifications, and addenda issued for this project. No allowances will be made because of unfamiliarity with any portion.
- I. The Proposer is responsible to determine the completeness of the proposal package contents provided in their specific proposal package received. Example: Compare the table of contents against the package contents and look for missing page numbers in proposal copy.

1.05 INTERPRETATIONS AND CHANGES BY ADDENDA

- A. If any Proposer is in doubt as to the meaning of any part of the Plans or Specifications, s/he may submit a written request to Elert & Associates for an

interpretation of that part. It shall be the responsibility of the Proposer to gain a clear and comprehensive understanding of the proposal documents requirements. It shall be the responsibility of the Proposer to obtain interpretations or clarifications before submitting a proposal.

B. Any interpretation or change will be made only by addendum numbered, dated, and issued to each Proposer on record as receiving a set of proposal documents. Neither Elert & Associates nor Owner shall be responsible for any other explanations or interpretations of the documents.

C. Requests and questions should be sent to:

Wendy Chretien
Elert & Associates
140 South 3rd Street
Stillwater, MN 55082
Email: Wendy.Chretien@elert.com

All requests must be in writing. Proposer is responsible to insure delivery of requests.

D. Questions may not be directed to any Owner personnel or any other parties.

E. **Requests may be submitted only until 5:00 PM CDT on August 20, 2010.**

F. No addenda will be issued later than 72 hours prior to the time and date for receipt of proposals except an addendum postponing or withdrawing the request for proposals. This time limit does not include weekends or holidays.

1.06 PRODUCT SUBSTITUTION REQUEST PROCEDURE

A. Requests for Substitutions: during the RFP response process, should the Proposer request a change in the material or equipment from that which is specified in the RFP, the Proposer shall provide the Owner with a written request for said change that includes the reason(s) for the substitution request.

B. Requests for Substitutions may be made only for materials or equipment in which the description includes the phrase “or approved equal”.

C. Schedule: all Requests for Substitution must be submitted no later than **5:00 PM CDT on August 20, 2010.**

D. Requirements: The Request for Substitution must include the following:

1. Manufacturer name and model of proposed item(s), and the item(s) proposed to be replaced.
2. Reason for substitution.
3. Material data sheets for all the proposed item(s).

4. Additional materials and/or narrative that support the Request for Substitution.
- E. Approval: The Owner may approve or deny the Request for Substitution. The Owner reserves the right to govern over and proclaim whether proposed products are equal to the specifications.

1.07 INSURANCE

- A. The Contractor shall purchase and maintain such insurance as will protect it from claims set forth below that may arise out of or result from its operations under the contract, whether the operations be by the Contractor, by a subcontractor, or by anyone employed by them.
- B. Such insurance shall be acquired for and on behalf of the Contractor in protecting them from claims for damages for bodily injuries, including sickness or disease, death, and care and loss of services, as well as from claims for property damages, including loss of use, which may arise from operations under the contract, whether such operations be by the selected Proposer or anyone directly or indirectly employed by them.
- C. The Contractor shall be responsible for all losses that fall under any deductibles on required insurance coverage.
- D. The company providing insurance for the Contractor and its subcontractors must be licensed to do business in the State of Minnesota and be acceptable to the Owner.
- E. If subcontractors are employed, the prime contractor shall procure and maintain bodily injury and property damage liability insurance for and on behalf of the Contractor for claims and damages arising out of acts of subcontractors in the same amounts as required for claims and damages arising out of acts of the Contractor.
- F. INDEMNIFICATION CLAUSE - Contractor agrees to defend, save harmless, and indemnify the City of Duluth, its agents and employees from any loss, cost, or damage by reason of Personal Injury or Property Damage of whatsoever nature or kind arising out of, or as a result of, the performance of the work by the Contractor, its employees, agents, or subcontractors. On ten days' written notice from the City of Duluth, Contractor will appear and defend all lawsuits against the City of Duluth growing out of such injuries and damages.
- G. Contractor shall provide Public Liability and Automobile Liability Insurance with limits not less than \$1,500,000 Single Limit, and twice the limits provided when a claim arises out of the release or threatened release of a hazardous substance; shall be with a company approved by the city of Duluth; and shall provide for the following; Liability for Premises, Operations, Completed Operations, Independent Contractors, and Contractual Liability.

- H. Worker's Compensation:
- a. State: Statutory
 - b. Applicable Federal: Statutory
 - c. Employer's Liability: \$ 100,000 per accident, per employee
\$1,000,000 disease, policy aggregate
\$ 100,000 disease, each employee
- I. Professional Liability Insurance in the amount per claim per occurrence equal to a minimum of \$1,500,000, with insurance to be maintained for three (3) years after completion of the work.
- J. Prior to the start of work, the Contractor shall furnish certificates or adequate proof of the foregoing insurance.
- K. **City of Duluth shall be named as Additional Insured** under the Public Liability, Excess/Umbrella Liability*, and Automobile Liability, or as an alternate, Contractor may provide Owners-Contractors Protective policy, naming itself and the City of Duluth. Contractor shall also provide evidence of Statutory Minnesota Worker's Compensation Insurance. Contractor to provide Certificate of Insurance evidencing such coverage with 30-days notice of cancellation, non-renewal or material change provisions included. The City of Duluth does not represent or guarantee that these types or limits of coverage are adequate to protect the Contractor's interests and liabilities.
- *An umbrella policy with a "following form" provision is acceptable if written verification is provided that the underlying policy names the City of Duluth as an additional insured.*
- L. Certificates shall name the Owner as an additional insured on all liability policies except for professional liability.
- M. The form of the certificate shall contain an unconditional requirement that the insurer must notify the City without fail not less than 30 days prior to any cancellation, non-renewal or modification of the policy or coverage's evidenced by said certificate and shall further provide that failure to give such notice to the City will render any such change or changes in said policy or coverages ineffective as against the City.
- N. **The use of an "Acord" form as a certificate of insurance shall be accompanied by two forms – 1) ISO Additional Insured Endorsement (CG 2010 pre 2004); and 2) Notice of Cancellation Endorsement (IL 7002) or equivalent, as approved by the Duluth City Attorney's Office.** (See attached example of Endorsements).

PRE-2004 CG 2010

- A. **Section II - Who Is an Insured** is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of your ongoing operations performed for that insured.

NOTICE OF CANCELLATIONS ENDORSEMENT

All Coverage Parts Included in this policy are subject to the following condition:
If we cancel this policy for any reason other than nonpayment

IL-7002 (10-90)

of premium, we will mail advance notice to the person(s) or organization(s) as shown in the Schedule.

SCHEDULE

<u>Person or Organization (Name and Address)</u>	<u>Advance Notice (Days)</u>
City of Duluth Purchasing Div Room 100 City Hall 411 West First Street Duluth, MN 55802	30

Procedure verified by:

_____ Date _____
 Don Douglas, Claims Adjuster
 Duluth City Attorney's Office

1.08 INDEMNIFICATION

- A. Any and all claims that arise or may arise against the Contractor or its agents, servants, or employees as a consequence of any act or omission on the part of the Contractor or its agents, servants, or employees while engaged in the performance of the contract shall in no way be the obligation or responsibility of the Owner.
- B. The Contractor shall indemnify, hold harmless, and defend the Owner and its officers and employees against any and all liability, loss, costs, damages, expenses, claims, or actions, including attorney's fees that the Owner, its officers, or its employees may hereafter sustain, incur, or be required to pay, arising out of or by reason of any act or omission of the successful Proposer, its agents, servants, or employees, in the execution, performance, or failure to adequately perform the successful Proposer's obligations pursuant to this contract.
- C. The Owner shall also be indemnified for any attorney's fees it incurs in enforcing this indemnification provision or any other indemnification provision in the contract.

1.09 INCURRING COSTS

- A. Owner is not liable for any costs incurred with replying to this proposal.

1.10 QUALIFICATIONS

- A. All Proposers shall complete a form certifying their qualifications for this project. The form is in section 00 45 16.
- B. The Owner will make such investigations as are deemed necessary to determine the Proposer's ability to perform the work, and the Proposer shall furnish to the Owner all such information and data for this purpose as the Owner may request. Before award of contract can be approved, the Owner shall be satisfied that the Proposer involved meets the above requirements.
- C. The Owner reserves the right to reject the proposal if the evidence submitted by, or investigation of, the Proposer fails to satisfy Owner that the Proposer is responsible and qualified to carry out the obligations of the contract and to complete the work contemplated therein.

1.11 BUY AMERICAN ACT AND DAVIS-BACON ACT COMPLIANCE

- A. The selected Contractor shall comply with the Buy American Act, 41 U.S.C. §10a-10d. The Buy American Act requires that all supplies and construction materials purchased be produced in the United States, unless such materials are not reasonably available, or such a purchase would not be in the public interest.

- B. The Contractor shall comply with the Davis-Bacon Act, which requires that contractors or subcontractors for construction projects pay workers employed directly at the work-site no less than the prevailing wages and fringe benefits paid on projects of a similar character.

1.12 UNIT PRICES

- A. In cases where any part of the proposal is to be received on the unit price basis, the quantities stated are approximate only, and will be used in making a comparison of proposals. Each proposer will be required to make her/his own estimates of the actual quantities involved and to calculate her/his unit price accordingly.
- B. Unit prices shall be submitted using the form found in Appendix A.
- C. The unit price may be used to add or deduct quantities of units as represented by the unit price.
- D. Failure to provide requested unit prices may result in the rejection of the Proposer's proposal.
- E. A proposal including unit prices may be rejected if it is found to be unbalanced.

1.13 TAXES

- A. In submitting the proposal, the Proposer is understood to have included in the price any applicable State or Federal sales, excise, or use tax on all materials, supplies, and equipment that are to be used in the project.

1.14 EXCEPTIONS

- A. Proposers who stipulate in their proposal any condition not contained in these specifications and other documents and drawings shall provide written justification for their stipulation on the Exceptions page of the proposal response.

1.15 ALTERNATE PROPOSALS

- A. Proposer shall carefully read requests for Alternate Proposals and thoroughly examine the Contract Documents to determine the extent the various changes and conditions will affect the proposal.
- B. Owner reserves the right to accept none, one, or any combination of Alternates in any order.
- C. Space is provided in the Proposal Form for requested Alternate Proposals. Failure to submit a proposal for any requested Alternate Proposal shall result in rejection of the entire proposal.

D. Proposer shall state the amount to be added to or deducted from the Base Proposal for making the changes, including all incidentals, omissions, additions, and adjustments as may be necessary or required by such changes. If there is no difference in price, the proposer shall state, "No Change."

E. All work required to execute the alternates shall conform to project specifications, drawings, and manufacturer instructions.

F. Description of requested Alternate Proposals is as follows:

1. Alternate Proposal No. 1: Addition of two (2) PTZ Cameras Mounted on City Hall building

Contractor shall provide alternate pricing for the addition of two (2) (exterior pan, tilt and zoom) cameras installed below the parapet on the SE and NE corners of the City Hall building.

a. Prior to work being started on this Alternate #1, Contractor shall confirm proper authorization and acceptance of the installation of these cameras by the required governing entities. This is an Historical Structure and any exterior devices mounted on building must meet City approval PRIOR TO installation.

b. Qty. 1 – Exterior Pan, Tilt, Zoom exterior camera mounted on Southeast corner of Building with corner mount bracket

c. Qty. 1 – Exterior Pan, Tilt, Zoom exterior camera mounted on Southwest corner of Building with corner mount bracket

d. Cabling, conduit and support hardware as necessary for connection to existing LAN network within City Hall Building

2. Alternate Proposal No. 2: Integration of existing ten (10) analog cameras mounted on the Aerial Lift Bridge into the IPVMS utilizing digital encoders to be located in Lift Bridge Control Office

Contractor shall provide alternate pricing to provide all materials and installation labor to integrate video feeds from the ten (10) existing analog cameras mounted on the bridge to the new IPVMS. Camera feeds shall also remain present at Bridge Office video display system.

a. This alternate shall include H.264 video encoders (10 channels), video splitters and all necessary cabling and equipment to include existing cameras on the proposed IPVMS described in this document.

b. Contractor is to test and verify minimum network throughput of this alternate prior to installation of this alternate.

c. Contractor is also to coordinate installation locations and procedures with City representative(s) prior to any work being started.

3. Alternate Proposal No. 3: Portable Video Surveillance Kit with Cellular Broadband Modem

Contractor shall provide and install a Portable Video Surveillance Kit to be used for mobile and temporary connections to the described IPVMS outlined in this document.

- a. This kit shall include an Exterior PTZ Exterior Camera pre-installed with outdoor housing and mounted on environmental enclosure, along with a Cellular broadband modem/router offering wireless protocols as previously presented in this document.
- b. PTZ Camera included within this kit shall be capable and configured to offer H.264 compressions capabilities.
- c. Contractor shall insure that PTZ camera selected in this kit is compatible with IPVMS software being offered.
- d. System shall be capable of being plugged-in to 110vac outlets for system power as necessary.
- e. This surveillance kit shall be offered in wall and pendant mounting option configurations
- f. Contractor shall provide setup of system with 3rd party broadband network provider with the monthly service contract and fees being the responsibility of the City of Duluth directly.
- g. Contractor shall provide end user training on mobile system.
- h. Approved Manufacturers:
 - i. Industrial Video & Control (IV&C), Model #PTZ-3130-06
 - ii. or Approved Equal

4. Alternate Proposal No. 4: Addition of Two (2) Exterior PTZ cameras mounted on each of The Bong Bridge (Hwy 2) and the Blatnik Bridge (Interstate 535) for a total of four (4) additional cameras

Contractor shall provide alternate pricing for the addition of two (2) pan, tilt and zoom cameras installed on each the two bridges listed above. One camera shall be designated to the waterway under the bridge and one camera shall be designated to the vehicle traffic above (at each location). Cameras on both of these bridges shall be connected to a wireless mesh node with throughput network connectivity back to the IPVMS described in this document.

- a. Prior to work being started on this Alternate, Contractor shall test and confirm minimum connectivity standards.

- b. All testing and signal integrity verification procedures shall be coordinated ahead of time with City Representative and Project Consultant.
 - c. Contractor shall coordinate and receive approval for camera mounting methods with Mn/DOT and the City prior to installation.
 - d. Qty. 2 Pan, Tilt Zoom exterior cameras mounted on each side of the Bong Bridge with mounting bracket
 - e. Qty. 2 Pan, Tilt Zoom exterior camera mounted on each side of the Blatnik Bridge with mounting bracket
 - f. Qty. 1 Exterior mounted Wireless Mesh Node
 - g. Cabling and conduit as required for connection to power and mesh node.
5. Alternate Proposal No. 5: Increase Minimum Video Archiving Storage Time from 21 days to 30 Days

Contractor shall provide alternate pricing for the provision of meeting minimum video storage requirements to 30 days. This provision will require the addition of a 4th Pivot3 fully loaded Cloudbank Appliance.

6. Alternate Proposal No. 6: Maintenance and support for Years 2 and 3.
- Maintenance and support for Years 2 and 3 (in addition to the base requirement of Year 1) for all provided systems and services, including all software updates and patches, remote and on-site support, parts replacement, system/equipment repairs, twice annual cleaning of camera housings, and preventative maintenance.
7. Alternate Proposal No. 7: Addition of single outdoor Thermal Imaging Camera.

Contractor shall provide alternate pricing for the addition of Flir PT-Series (Model #PT-304) pan, tilt and zoom thermal imaging camera installed on the Lift Bridge. Camera shall be designated to the waterway around the bridge. Camera shall be connected to the wireless mesh node with throughput network connectivity back to the IPVMS described in this document.

- a. Contractor shall coordinate and receive approval for camera mounting methods with the City prior to installation.
- b. Qty. 1 Exterior mounted Flir PT-Series Thermal Imaging Camera with:
 - i. 36x optical Zoom
 - ii. 640x480 resolution

- iii. Heater/blower
- iv. 65mm lens
- c. Cabling and conduit as required for connection to power and mesh node.

1.16 DOCUMENT SUBMISSION AND DELIVERY

- A. Proposers shall provide an original proposal and two (2) copies, plus one electronic format copy (on CD or DVD). Each copy shall include all documents, specifications, drawings, and papers to be considered in the proposal evaluation.
- B. The original proposal bond/security shall be placed with the original proposal document.
- C. Include Insurance Certificate(s) that meet all the Insurance requirements listed previously in this section.
- D. All responses submittals shall be placed into a sealed envelope or sealed container that shall be marked to indicate the following:
 - 1. The name and address of the Proposer
 - 2. “Response to RFP#10-24DS Port Security Camera System for City of Duluth”
 - 3. The proposal due date
- E. The proposal shall be mailed or submitted as follows:

Original (with bond) and One Written Copy:	One Written Copy and One Electronic version (on CD or DVD):
Mr. Dennis Sears Purchasing Agent City of Duluth Purchasing Office City Hall Room #100 411 West 1 st Street Duluth, MN 55802 (218) 730-5003	Elert & Associates Attn: Wendy Chretien 140 Third Street South Stillwater, MN 55082 (651) 705-1227

- F. The Proposer agrees not to hold the Owner or Project Consultant responsible for simple typos, minor omissions, misspelling of words, or other specification inconsistencies where reasonable persons, familiar with the type of work specified herein, would understand the scope as though such conditions did not exist.

1.17 WITHDRAWAL OF PROPOSALS

- A. Proposers may withdraw their proposal at any time before the time set for the opening of proposals, and a proposal may be withdrawn sixty (60) days after the scheduled closing time for the receipt of proposals if Owner has not acted thereon.

1.18 CONSIDERATION OF PROPOSALS

- A. Owner reserves the right to accept or reject any or all proposals and waive formalities or irregularities in the process.

1.19 PROPOSAL ACCEPTANCE

- A. A proposal once submitted shall be deemed final and binding on the Proposer, and shall constitute an option with Owner to enter into a contract upon the terms set forth in the proposal.
- B. All proposal prices must be valid for 60 days from proposal due date.

1.20 PROPOSAL AWARD

- A. Owner reserves the right to award the proposal in whole or in part, by item, and/or by group of items where such actions serve the best interests of Owner. Owner reserves the right to award alternates in any order that serves the best interests of Owner.
- B. The award of contract will be made on the basis of the following evaluation criteria, providing the cost does not exceed the amount of funds estimated by the Owner as available to finance the Contract:
 - 1. Projects of similar size and scope completed by Proposer
 - 2. Years in business/financial stability of Proposer
 - 3. Price; alternates and unit prices will be considered in establishing the cost comparison.

1.21 CONTRACT NEGOTIATIONS

- A. Owner reserves the right to negotiate a contract after the Contractor is selected. Selection will be based only on the proposals received and subsequent interviews, if any; therefore, proposals must be complete as described herein.

1.22 PERFORMANCE BOND AND LABOR AND MATERIALS PAYMENT BONDS

- A. The Contractor will be required to provide a Performance Bond and a Payment Bond in the amount of 100 percent of the award proposal. These bonds must be furnished within 10 days of award.

- B. Refer to Appendix C for City of Duluth Performance and Payment Bond forms.

1.23 COMMENCEMENT AND COMPLETION

- A. The Contractor must agree to coordinate the work schedule with the Owner; to commence the work on or before a date to be specified in a written “Notice to Proceed”; and to fully complete all the work per the schedule outlined in Section 00 31 13. Completion time will be converted to a specific date at the time the “Notice to Proceed” is issued. Refer also to *General Conditions*, the article titled “Time for Completion of the Project.”

END OF SECTION

SECTION 00 23 00 – PROCUREMENT DEFINITIONS

1.01 DEFINITIONS

The following terms may be used within this document:

- A. Documents: The complete package of Proposal and Contract Requirements, related Division 27 and 28 sections, drawings, schedules, and addenda that make up this Request for Proposal.
- B. Work: The provision of products and/or services to meet the requirements specified in these documents.
- C. Owner: Refers to the City of Duluth.
- D. Consultant: Refers to Elert & Associates.
- E. Project Manager: Refers to the person or entity assigned by the City of Duluth to manage this project.
- F. Proposer: A vendor who is submitting a proposal for consideration.
- G. Contractor: The Proposer selected by the Owner for a contract to complete the Work.
- H. Notice to Proceed: Written notice provided to the Contractor by City of Duluth authorizing the Contractor to proceed with the Work and establishing the date for completion of the Work.

END OF SECTION

SECTION 00 25 16 – PRE-PROPOSAL MEETING

1.01 PRE-PROPOSAL MEETING - MANDATORY

- A. A mandatory Pre-Proposal meeting will be held on August 19, starting at 10:00 AM CDT at Duluth City Hall, 411 West 1st Street, Room 405 (Mayor's Reception Room).
- B. Any entity that wishes to submit a proposal must have at least one representative present at this Pre-Proposal Meeting, including the site review portion.
- C. The initial meeting will be followed by a review of key sites. Participants should anticipate being occupied with the site reviews until 4:00 PM.
- D. Proposers will be responsible for their own transportation between sites. Maps showing the locations will be provided at the initial meeting. The anticipated order of site visits is:
 - 1. Aerial Lift Bridge
 - 2. Boardwalk/Lake Street area
 - 3. Bayfront Pavilion
 - 4. Garfield area
 - 5. Lakewood Water Treatment facility
 - 6. Observation Road Tower
 - 7. Highway 39 bridge
 - 8. There will be no review of the Bong or Blatnik Bridges. Approval to place cameras on these bridges is currently pending from Mn/DOT. If approved, exact camera locations, mounting methods and electrical power will need to be coordinated with the City and Mn/DOT.

END OF SECTION

SECTION 00 24 00 – PROCUREMENT SCOPE

1.01 GENERAL

- A. A total up to of 28 new cameras (including some alternates) are to be installed at eight (8) locations, and five (5) existing analog cameras are to be tied into the system. There are also several Add Alternate requests for potential additions to the system. These Alternates are described in Section 00 21 16.
- B. The servers and storage are to be installed in the City Hall data center, while the initial monitoring area will be at the Police Department front desk (also in City Hall). When the new Police Headquarters building (under construction) is completed, the city will relocate storage, servers, and monitoring equipment to this location. The Lakewood facility will also house a smaller server/storage unit serving the cameras at that location.

1.02 TURN-KEY SYSTEM

- A. The term turn-key means the Contractor will be responsible for all aspects of the project, including but not limited to coordinating and connecting systems to electrical power; mounting cameras and wireless equipment; providing and installing cabling; installing, configuring and testing all equipment; training City personnel in the use of the system; a 12-month warranty, and 12 months of support & maintenance.
- B. The Contractor must provide all staffing and equipment needed for this project, including aerial work platforms such as lifts or bucket trucks.
- C. The selected Contractor is responsible to meet all requirements of this RFP, including the General Technology Requirements in Section 27 00 00. Proposers shall familiarize themselves with the entire set of specifications and drawings.

1.03 ELECTRICAL SUBCONTRACTOR

- A. Work will be required to connect AC electrical power at camera locations. The Proposer shall include an allowance of \$80,000 to be used to subcontract an electrical contractor for installation of high voltage electrical work (exceeding 70-volts). This \$80,000 shall be included in the proposal pricing and shall be included in successful contractor's contract. This allowance is specifically for the subcontractor's fees; any mark-up the prime contractor adds must be included in its base response cost amount.
- B. Contractor must provide detailed invoices for all electrical services, including at a minimum: locations where work was performed, job classifications of workers, hourly rate per classification, and number of hours per worker.

- C. The Prime Security Contractor shall use a locally based state contract certified electrical contractor for electrical work exceeding 70 volts. Pre-approved contractors include:
 - 1. Service Electric (107 Belknap Street, Superior, WI 54880; phone: 715-392-8771).
 - 2. API Electric (4330 West 1st Street, Suite B, Duluth 55807; phone: 218-628-3323)
- D. The Proposer is not required to provide references for either of the pre-selected electrical contractors.
- E. The Prime Contractor shall be responsible to coordinate, schedule and manage all aspects of Electrical Subcontractor work.

1.04 SYSTEM DESCRIPTION

- A. For backhaul from some camera locations, new high-capacity wireless links will be needed to send video data to the monitoring site. Refer to Section 28 21 00 for specifications.
- B. In-building (premise) cabling will be required at some City-owned facilities to connect the cameras and/or wireless systems to the city's network. Refer to Sections 27 10 00 and 27 20 00 for specifications for such cabling and network switches/connectivity.
- C. New IP-based cameras (mostly Pan-Tilt-Zoom) shall be installed in multiple locations. Refer to Section 28 23 27 for camera specifications and quantities.
- D. Refer to Sections 28 23 00, 28 23 13, and 28 23 16, for specifications for the IP Video Surveillance System General Requirements, Video Management System, and Monitoring and Supervisory Interfaces, respectively.

1.05 LOCATIONS

- A. Site location information will be provided during the mandatory Pre-Proposal meeting.

END OF SECTION

SECTION 00 31 13 - PRELIMINARY SCHEDULE

1.01 SCHEDULE INFORMATION

- A. The City obtained a federal DHS grant to help cover the cost of the system. This grant's requirements are driving the project schedule, which is aggressive; grant funds must be expended by December 2010.
- B. The Owner reserves the right to adjust the schedule.
- C. The Contractor shall work closely with Owner and Consultant to ensure proper schedule.

Task/Milestone	Completion Date
Proposals Due	August 30, 2010
Notice to Proceed issued	September 14, 2010
Performance & Payment bonds, Submittals, and final Bill of Materials due	As soon as possible - latest by September 24, 2010
Purchase Order issued	September 27, 2010
Wireless Connectivity Test completed, as defined in Section 28 21 00	October 11, 2010
Substantial Completion	December 1, 2010
Training complete	December 15, 2010
Final Completion/Approval	December 30, 2010

END OF SECTION

SECTION 00 42 00 – PROPOSAL FORM

1.01 INFORMATION ABOUT THE PROPOSER

Company Name: _____

Legal Name (if different): _____

Years in Business: _____

Number of years installing systems similar to this proposal: _____

Contact Person: _____

Full Mailing Address: _____

Telephone Number: _____

Fax Number: _____

Email Address: _____

Name and Phone Number of Bonding Company: _____

Number of Full-Time Employees: _____

Number of Technical/Installation Personnel: _____

Names and titles of personnel who would work on this project (attach brief experience listings for each focusing on similar projects):

Name of person who would be project manager for this project (attach experience listing with similar projects):

1.02 QUALIFICATIONS AND REQUIREMENTS

- A. If more than one (1) Proposer or company is involved in the installation, training, and/or support after installation, there must be a Prime Contractor. This Prime Contractor assumes responsibility for all other entities involved.

List Prime Contractor here: _____

- B. The response must include a statement from all involved Proposers agreeing that the configuration will work as specified and that all Proposers will work under the Prime Contractor to resolve any configuration or interoperability problems during the installation process at no additional cost to the Owner. Write statement below.

C. Experience and Existing Customers

1. How many similar systems has the Proposer installed within 200 miles of the Owner? _____
2. How many statewide? _____
3. How many nationwide? _____

D. References

To be a qualified Proposer, the Proposer must include below three (3) references with similar equipment installed. Preference will be give to Proposers with references for implementations at organizations most similar to the Owner and of similar quantities of equipment. **All references will be called. Please verify information before submitting**, and please tell your contacts to expect a 10-15 minute call.

1. Reference 1

Organization Name _____

Address _____

Type of Business _____

Contact Person _____

Telephone Number _____

Email Address _____

Secondary Contact Person _____

Telephone Number _____

Email Address _____

Dates of Installation _____

Description of System (quantities, type of equipment, etc.) _____

Contract amount: _____

2. Reference 2

Organization Name _____

Address _____

Type of Business _____

Contact Person _____

Telephone Number _____

Email Address _____

Secondary Contact Person _____

Telephone Number _____

Email Address _____

Dates of Installation _____

Description of System (quantities, type of equipment, etc.) _____

Contract amount: _____

3. Reference 3

Organization Name _____

Address _____

Type of Business _____

Contact Person _____

Telephone Number _____

Email Address _____

Secondary Contact Person _____

 Telephone Number _____

 Email Address _____

Dates of Installation _____

Description of System (quantities, type of equipment, etc.) _____

Contract amount: _____

1.03 SUBCONTRACTORS/PARTNERS

- A. The applicable terms and provisions of the contract documents shall bind every subcontractor. Further information about subcontractors may be requested prior to award.
- B. Identify all subcontractors or partners used for any purposes. Failure to disclose subcontractors/partners may lead to disqualification. If necessary, include separate sheet(s) labeled "Subcontractors/Partners."

Business Name	Years Experience	Function
_____	_____	_____
_____	_____	_____
_____	_____	_____

C. References for Subcontractors/Partners

Include below two (2) references for EACH subcontractor. (Duplicate this page if needed for multiple subcontractors.) Preference will be given to Proposers with references for implementations most similar to this project.

1. Subcontractor/Partner Reference 1

Organization Name _____

Address _____

Type of Business _____

Contact Person _____

Telephone Number _____

Email Address _____

Fax Number _____

Dates of Installation _____

Description of System (quantities, type of equipment, etc.) _____

2. Subcontractor/Partner Reference 2

Organization Name _____

Address _____

Type of Business _____

Contact Person _____

Telephone Number _____

Email Address _____

Fax Number _____

Dates of Installation _____

Description of System (quantities, type of equipment, etc.) _____

D. Service after Installation

1. How many service personnel trained in maintaining the proposed system does Proposer employ in the client's area? Please indicate location closest to the client.

a. Service personnel: _____

b. Location: _____

2. List names and job titles of service personnel who would be assigned to this customer after installation:

3. Provide the address of Proposer's service center(s) closest to the client:

Company _____

Address _____

Telephone Number _____

4. Who will maintain parts inventory? At what location?

Company _____

Address _____

Telephone Number _____

5. What critical component parts are kept in stock at this location?

6. What response time can Proposer supply in an emergency situation?
 Phone Response: _____ hours On-Site Response: _____ hours
7. What response time does Proposer offer in a non-emergency situation?
 Phone Response: _____ hours On-Site Response: _____ hours

1.04 PRICE SUMMARY

To: City of Duluth

We, _____, a (joint venture)
 (corporation)
 (partnership)
 (individual)
[Cross out inapplicable]

of _____
 Street City County State Zip

Hereby agree to execute the proposed contract and to furnish a satisfactory Surety Bond in the amount specified within ten (10) days of offering, and to provide all labor and material required for the construction of the project designated above, for the prices hereinafter set forth, in strict accordance with the Contract Documents prepared by Elert & Associates, 140 Third Street South, Stillwater, MN 55082 for the City of Duluth.

A. Base Proposal

ALL WORK required to fully complete the project in accordance with the Contract Documents, for the sum of...

Base Project Cost

_____ Dollars

(\$ _____)

B. Alternate Proposal No. 1: Addition of two (2) PTZ Cameras Mounted on City Hall building

For the sum of

_____ Dollars

(\$ _____)

C. Alternate Proposal No. 2: Integration of existing ten (10) analog cameras mounted on the Aerial Lift Bridge into the IPVMS utilizing digital encoders to be located in Lift Bridge Control Office

For the sum of

_____ Dollars

(\$ _____)

D. Alternate Proposal No. 3: Portable Video Surveillance Kit with Cellular Broadband Modem

For the sum of

_____ Dollars

(\$ _____)

E. Alternate Proposal No. 4: Addition of Two (2) Exterior PTZ cameras mounted on each of The Bong Bridge (Hwy 2) and the Blatnik Bridge (Interstate 35) for a total of four (4) additional cameras

For the sum of

_____ Dollars

(\$ _____)

F. Alternate Proposal No. 5: Increase Minimum Video Archiving Storage Time from 21 days to 30 Days

For the sum of

_____ Dollars

(\$ _____)

G. Alternate Proposal No. 6: Provide maintenance and support for Years 2 and 3 (additional cost only, above the first year base requirement)

For the sum of

_____ Dollars
(\$ _____)

H. Alternate Proposal No. 7: Addition of single outdoor Thermal Imaging Camera

For the sum of

_____ Dollars
(\$ _____)

I. Unit Prices - Proposer shall complete Appendix A - Unit Pricing Sheet

This pricing shall be valid for a period of 12 months subsequent to project completion.

1.05 COMMENCEMENT AND COMPLETION OF CONTRACT WORK

The undersigned agrees, if awarded the contract, to commence the Contract work on or before a date to be specified in a written Notice to Proceed, and to complete the work within the time dictated in the Instructions to Proposers.

1.06 ADDENDUM RECEIPT

We acknowledge receipt of the following Addenda:

Addendum No. _____ Date _____

1.07 SIGNATURE

Prior to signing, Proposer's attention is directed to the Instructions to Proposers to avoid the possibility of invalidating this proposal.

By signing this proposal form, such action certifies that the Proposer has personal knowledge of the following:

- A. That said Proposer has examined the drawings and specifications, carefully prepared the proposal form, and checked the same in detail before submitting said proposal; and that said proposer, or the agents, officers, or employees thereof, have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive proposal in connection with this proposal.
- B. That all of said work will be performed at the Proposer's own proper cost and expense and that the Proposer will furnish all necessary materials, labor, tools, machinery, apparatus, and other means of construction in the manner provided in the applicable specifications and at the time dictated in the contract.

(Firm Name)

(Area Code & Telephone Number)

(Seal, if proposal is by a corporation)

By: _____
(Signature of Proposer)

Date: _____

END OF SECTION

SECTION 00 45 00 – REPRESENTATIONS AND CERTIFICATIONS

1.01 00 45 16 IP VIDEO SURVEILLANCE CONTRACTOR QUALIFICATIONS STATEMENT & CONTRACTOR CERTIFICATION

A. This form shall be completed and included in the proposal response. Proposers not meeting these requirements will have their response rejected.

In submitting this proposal response and upon award of a contract, I hereby certify that (check all that apply):

- My Company has the required Prior Project Experience: Installation of IP-based video surveillance systems using wireless mesh network connectivity. My company can provide a minimum of three (3) project references that each include at least 100% of the video channels included for this project (40 video channels). At least one of these projects must use a Video Management system that is approved for this project.
 - a. References must include contact name, phone number, brief description of project, date of completion, and contract amount.
- My company meets all of the following minimum qualifications in order to be considered qualified to perform this contract. Failure to meet these minimum requirements shall be grounds for disqualification of the Proposer. My company certifies that it:
 - a. Maintains a permanent place of business.
 - b. Maintains a minimum of eight (8) full time installers/technicians. This does not include subcontractors or part-time employees. List of installers/technicians must be included with proposal response.
 - c. Has a minimum of three (3) certified technicians in the video management solution proposed for this project. Copies of manufacturer certifications shall accompany proposal response.
 - d. Is certified, by the manufacturer, in the wireless mesh network solution that is being proposed here.
 - e. Is a licensed private alarm security contractor in the state of Minnesota.
- With this response I have included all documentation verifying the experience including, but not limited to; job description, point of contact, mailing address, and telephone number, and references for each project, and certifications. And, I understand that failure to provide this documentation will constitute grounds for rejection of response.

If this proposal is accepted, the Contractor agrees to complete the work by December 31st, 2010.

Name of Company: _____

Authorized Signature: _____ Date: _____

Title: _____

1.02 AFFIDAVIT AND INFORMATION REQUIRED OF PROPOSERS

Affidavit of Non-Collusion:

I hereby swear (or affirm) under penalty of perjury:

- 1) That I am the proposer (if the proposer is an individual), a partner in the proposer (if the proposer is a partnership), or an officer or employee of the proposing corporation having authority to sign on its behalf (if the proposer is a corporation);
- 2) That the attached proposal or proposals have been arrived at by the proposer independently and have been submitted without collusion with and without agreement, understanding, or planned common course of action with any other vendor or materials, supplied, equipment or services described in the request for proposals, designed to limit independent bidding or competition;
- 3) That the contents of the proposal or proposals have not been communicated by the proposer or its employees or agents to any person not an employee or agent of the proposer or its surety on any bond furnished with the proposal or proposals and will not be communicated to any such person prior to the official opening of the proposal or proposals; and
- 4) That I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed: _____

Firm Name: _____

Subscribed and sworn to me before this ____ day of _____, _____

NOTARY PUBLIC _____

My commission expires: _____

Proposer's E.I. Number _____
(Number used on employers quarterly Federal Tax return)

1.03 EQUAL EMPLOYMENT OPPORTUNITY EEO AFFIRMATIVE ACTION STATEMENT & COMPLIANCE CERTIFICATE

TO: City of Duluth, MN PROJECT NUMBER & DESCRIPTION _____

FROM:

(FIRMs name, address, telephone number)

A) Employment: It is the policy of the above named FIRM to afford equal opportunity for employment to all individuals regardless of race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance and/or disability. The FIRM will take affirmative action to ensure that we will: (1) recruit, hire, and promote all job classifications without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability, except where sex is a bona fide occupational qualification; (2) base decisions on employment so as to further the principle of equal employment opportunity; (3) ensure that promotion decisions are in accord with the principles of equal employment opportunity by imposing only valid requirements for promotional opportunities; (4) ensure that all personnel actions such as compensation, benefits, transfers, layoffs, return from layoff, FIRM sponsored training, education tuition assistance, social and recreational programs will be administered without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability. The FIRM also intends full compliance with Veteran affirmative action requirements. Additionally, minority and female employees shall be encouraged to participate in all FIRM activities and refer applicants.

I have designated (name) _____ to direct the establishment of and to monitor the implementation of personnel procedures to guide the FIRMs affirmative action program. Where PROJECTS exceed \$500,000, this official shall also serve as the liaison officer that administers the FIRMs Minority Business Enterprise Program. This official is charged with designing and implementing audit and reporting systems that will keep management informed on a monthly basis of the status of the equal opportunity area.

Supervisors have been made to understand that their work performance is being evaluated on the basis of their equal opportunity efforts and results, as well as other criteria. It shall be the responsibility of the FIRM and its supervisors to take actions to prevent harassment of employees placed through affirmative action efforts.

B) Reports: Unless exempted by law and regulation, the FIRM shall make available and file those reports related to equal opportunity as may be required by the City of Duluth and State and Federal compliance agencies. Requirements and Reports are defined in 41CFR60 Compliance Responsibility for Equal Opportunity published by the U. S. Department of Labor which is incorporated herein by reference. Additional requirements are defined in various State and Federal Civil Rights Legislation and Rules promulgated thereunder.

(continues on next page)

C) **Nonsegregated Facilities:** The FIRM certifies that it does not maintain or provide for its employees any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The FIRM certifies that it will not maintain or provide for its employees any segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The FIRM agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this certificate. As used in this Certification, the term **Nonsegregated facilities** means any waiting rooms, work area, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation for entertainment area, transportation, and housing facilities provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise.

D) **Affirmative Action Compliance Program:** Unless exempted by regulation and law, the FIRM if the FIRM has 50 or more employees and if the value of current contracts with the City of Duluth exceeds \$50,000 shall prepare and maintain a written affirmative action compliance program that meets the requirement as set forth in 41CFR60.

E) **Non-Compliance:** The FIRM certifies that it is not currently in receipt of any outstanding letters of deficiencies, show cause, probable cause, or other such notification of non-compliance with EEO Laws and Regulations.

F) **Employment Goals - Construction Projects:** It shall be the goal of the FIRM if the PROJECT is of a construction nature that in all on-site employment generated that no less than 3% of the on-site workforce will be minority employees and that no less than 7% of the on-site workforce will be female employees. Further, it is the goal of the FIRM if the PROJECT is of a construction nature that in all on-site employment generated that no less than 3% of the work hours generated shall be worked by

minority employees and that no less than 7% of the work hours generated shall be worked by female employees.

G) **Subcontractors:** The FIRM will for all its PROJECT subcontractors regardless of tier (unless exempted by law and regulation) that received in excess of \$2,500 require that: (1) the subcontractor shall execute an AEEEO Statement and Certification@ similar in nature to this AStatement and Certification@, (2) said documentation to be maintained on file with the FIRM or subcontractor as may be appropriate.

Executed this _____ day of _____, 20__ by:

Printed name and title

Signature

NOTE: In addition to the various remedies prescribed for violation of Equal Opportunity Laws, the penalty for false statements is prescribed in 18 U.S.C. 1001.

END OF SECTION

SECTION 00 52 00 –FORM OF AGREEMENT

1.01 00 52 13 - AGREEMENT FORM

- A. There is to be a single contract between a prime contractor and the City of Duluth.
- B. The City reserves the right to use either a Purchase Order or a Contract at its discretion to obtain the goods and services requested in this RFP. If a Purchase Order process is used, the selected Contractor agrees that it will be bound by and abide by the terms and conditions in this RFP.
- C. If a Contract is selected as the acquisition method, the agreement form to be used for this project is a contract document developed by the City of Duluth, as found below.
 - 1. Any exceptions to this contract document must be presented with the Proposal and clearly labeled as exceptions.
 - 2. A Proposer may submit alternate contract language for consideration by the City, but the City is under no obligation to accept such requests.

CONTRACT

**CONTRACTOR
&
CITY OF DULUTH**

THIS AGREEMENT, made and entered this _____ (**Day**) of (**Month/Year**), _____ is by and between the **CITY OF DULUTH**, a municipal corporation, hereinafter referred to as the "CITY," party of the first part, and (**Contractor Name**), (**Contractor Address, City, State, Zip Code**), hereinafter referred to as the "Contractor," party of the second part;

WITNESSETH: That the Contractor and the City agree as follows:

- 1. The following shall be deemed to be part of this contract:
 - (a) The annexed resolution and legal advertisement of the City Council.

- (b) The bid request and specifications, as modified by irreconcilable language in this written contract.
 - (c) The bid by Contractor, as modified by irreconcilable language in this written contract.
 - (d) The performance bond and payment bond certification.
 - (e) All provisions of law applicable to a contract of this nature.
2. The Contractor agrees to furnish and deliver to the City Department of **(Department/Division)** all labor, supervision, material, equipment, supplies, insurance, performance bond, payment bond and everything else necessary for general _____ construction of _____
- (Project Description)** at **(Location of Project)**, all in strict accordance with plans and specifications prepared by _____ **(City Architect/Engineer or City's Designated Consultant)**, your bid of _____\$ **(Vendor Bid Amount)** and **Council Resolution No.**_____, passed **(Month/Day & Year of Resolution Passage)**.
3. The City agrees to pay to the Contractor when this Agreement shall be fully completed and fulfilled on the part of said Contractor to the satisfaction of the City, the sum of \$_____ **(Bid Dollar Amount)** _____ **(Spell Bid Dollar Amount)**. Payments under this Agreement shall be made from the _____ **(Fund Name/Number)**, **(Agency)**, _____ **(Organization)**, _____ **(Object)**, _____ **(Project)**, **(Vendor Code)**, _____ **(Requisition Number)**.
4. The Contractor shall furnish and maintain in full force and effect until this contract is completely performed by the Contractor, a performance bond and payment bond if and when required by law, or if and when required by the City.
5. Inasmuch as this contract concerns work, materials and equipment needed for the public benefit, the provisions of this contract relating to the time of performance and completion of work and delivery of materials or equipment are of the essence of this contract.
6. The Contractor will save the City harmless from all costs, charges, damages, and loss of any kind that may grow out of the matter covered by this contract, and will comply with all local, state and federal laws, rules and regulations applicable to this contract and to the work to be done and things to be supplied hereunder.
7. Insurance
- a. Contractor shall provide the following minimum amounts of insurance from insurance companies authorized to do business in the state of Minnesota.

- (1) Workers' compensation insurance in accordance with the laws of the State of Minnesota.
- (2) Public Liability and Automobile Liability Insurance with limits not less than **\$1,500,000** Single Limit, and twice the limits provided when a claim arises out of the release or threatened release of a hazardous substance; shall be in a company approved by the city of Duluth; and shall provide for the following: Liability for Premises, Operations, Completed Operations, Independent Contractors, and Contractual Liability.
- (3) City of Duluth shall be named as **Additional Insured** under the Public Liability, Excess/Umbrella Liability* and Automobile Liability, or as an alternate, Contractor may provide Owners-Contractors Protective policy, naming itself and the City of Duluth. Contractor shall also provide evidence of Statutory Minnesota Workers Compensation Insurance. Contractor to provide Certificate of Insurance evidencing such coverage with 30-days notice of cancellation, non-renewal or material change provisions included. The City of Duluth does not represent or guarantee that these types or limits of coverage are adequate to protect the Contractor's interests and liabilities.

**An umbrella policy with a "following form" provision is acceptable if written verification is provided that the underlying policy names the City of Duluth as an additional insured.*

- (4) If a certificate of insurance is provided, the form of the certificate shall contain an unconditional requirement that the insurer notify the City without fail not less than 30 days prior to any cancellation, non-renewal or modification of the policy or coverages evidenced by said certificate and shall further provide that failure to give such notice to City will render any such change or changes in said policy or coverages ineffective as against the City.
- (5) **The use of an "Acord" form as a certificate of insurance shall be accompanied by two forms – 1) ISO Additional Insured Endorsement (CG-2010 pre-2004) and 2) Notice of Cancellation Endorsement (IL 7002) or equivalent, as approved by the Duluth City Attorney's Office.**

- b. The insurance required herein shall be maintained in full force and effect during the life of this Agreement and shall protect Contractor, its employees, agents and representatives from claims and damages including but not limited to personal injury and death and any act or failure to act by Contractor, its employees, agents and representatives in the negligent performance of work covered by this Agreement.
 - c. Certificates showing that Contractor is carrying the above described insurance in the specified amounts shall be furnished to the City prior to the execution of this Contract and a certificate showing continued maintenance of such insurance shall be on file with the City during the term of this Contract.
 - d. The City shall be named as an additional insured on each liability policy other than the workers' compensation policies of the Contractor.
 - e. The certificates shall provide that the policies shall not be changed or canceled during the life of this Contract without at least 30 days advanced notice being given to the City.
8. No claim whatsoever shall be made by the Contractor against any officer, agent or employee of the City for, or on account of, anything done, or omitted to be done, in connection with this contract. If this contract is not made in conformity with mandatory provisions of any statute or of the ordinances and charter of the City of Duluth, the Contractor agrees to raise no defense and make no claim against the City of the basis of ratification, laches, estoppel, or implied contract.
9. The Contractor shall not assign, transfer, convey or otherwise dispose of this contract, or his right to execute it, or his right, title or interest in or to it, or any part thereof, or assign, by power of attorney, or otherwise, any of the moneys due or to become due under this contract, without the consent of the City, evidenced by a resolution duly adopted by the City Council.
10. The Contractor agrees that in the hiring of common or skilled labor for the performance of any work under this contract, Contractor will not, by reason of race, creed or color, religion, national origin, sex, marital status, status with regard to public assistance, membership or activity in local commissions, disability or age, discriminate against any person or persons who are citizens of the United States who are qualified and available to perform the work to which such employment relates.
11. The Contractor agrees that Contractor shall not in any manner discriminate against or intimidate or prevent the employment of any person or persons, or on

being hired, prevent or conspire to prevent any person or persons from the performance or work under this contract on account of race, creed or color, religion, national origin, sex, marital status, status with regard to public assistance, membership or activity in local commissions, disability or age.

12. The contractor agrees that, as provided in Minnesota Statutes 16C.05, Subd. 5, contractor's books, records, documents, and accounting procedures and practices are subject to examination by the city or the state auditor for six years from the date of execution of this contract.
13. This contract may be cancelled or terminated by the City and all moneys due or to become due hereunder may be forfeited for a second or subsequent violation of the terms or conditions of Section 10 or 11 of this contract.
14. This Agreement constitutes the entire agreement between the City and the Contractor on the subject matter hereof. It may not be changed, modified, discharged or extended except by written instrument duly executed on behalf of the City and the Contractor. The Contractor agrees that no representations or warranties made by the City shall be binding upon the City unless expressed in writing herein.
15. This Agreement shall not be in force and effect, or in any way binding upon the City until the same shall have been approved by the Director of _____ **Department Name**, signed by the Mayor, attested by the Clerk, and countersigned by the City Auditor.
16. The Contractor unconditionally guarantees to perform all work pursuant to this contract in a good and workmanlike manner, in strict compliance with the specifications and instructions hereto attached, and to the satisfaction of the City of Duluth.

AUTHORIZATIONS

Countersigned:

CITY OF DULUTH

City Auditor

By Mayor

Approved this ____ day of _____
(month), 2010

Attest City Clerk Date attested to:

Director, Department

CONTRACTOR

Approved this ____ day of _____
(month), 2010

By Contractor's Representative

Purchasing Agent

Representative's Printed Name/Title

Date: _____

Date: _____

Assistant City Attorney

Date: _____

END OF SECTION

SECTION 00 70 00 – CONDITIONS OF THE CONTRACT

1.01 00 72 00 GENERAL CONDITIONS

- A. The Governing General Conditions of the Contract for Construction (AIA Document A201, 1997) shall be hereafter referred to as the “General Conditions.”
- B. AIA Document A201 “General Conditions” are hereby made part of the Contract Documents to the same extent as if reproduced in full, except as modified, amended, revised, rescinded, or supplemented by the Supplementary Conditions.
- C. The Supplementary Conditions shall take precedence in all cases of conflicting requirements.
- D. Those portions of the AIA General Conditions that are not altered, modified, amended, or rescinded by the Supplementary Conditions shall remain in full force and effect as published.
- E. Copies of the AIA Document A201 may be requested for examination by contacting the offices of the project Consultant, Elert & Associates. Same may be purchased, at a nominal charge, from dealers in Architect’s supplies or from the American Institute of Architects, 1735 New York Avenue, NW, Washington, DC 20006.

1.02 00 73 00 - CITY OF DULUTH - PART II - SUPPLEMENTARY GENERAL CONDITIONS FOR FEDERALLY AND/OR CITY ASSISTED ACTIVITIES

- A. Please see **Appendix B** for the City’s Supplementary General Conditions (17 pages). All provisions of the City’s Supplementary General Conditions are included as if bound herein.

1.03 00 73 02 - ADDITIONAL SUPPLEMENTARY CONDITIONS

- A. **Compliance with Laws/Standards:** The Contractor shall comply with all Federal, State, and local laws, statutes, ordinances, rules, and regulations now in effect or hereinafter adopted pertaining to this contract or to the facilities, programs, and staff for which the Contractor is responsible.
- B. **Add to Article 8.2 - Progress and Completion: Liquidated Damages:** If the Contractor fails to provide a complete and operational system by the specified or otherwise agreed upon date of completion, the City of Duluth will receive reimbursement for liquidated damages of \$1,000 per workday or portion thereof until such is provided.

C. Add to Article 10 - Protection of Persons and Property

1. The Contractor and any subcontractors will comply with all State and Federal laws as they relate to employee safety, i.e., AHERA, OSHA, Confined Space Entry, Employee Right to Know, Respiratory Protection, NESHAP, Look Out Tag Out, etc.
2. Contractor and any subcontractors are subject to job site safety rules set forth by the Project Manager.

D. Add to Article 13 - Miscellaneous Provisions

1. The drawings and specifications documents (RFP) form a part of the contract and shall be considered as bound therewith.
2. In the event of an inconsistency or discrepancy between parts of the proposal package, the Contractor will be bound by the discrepancy clause herein.
3. Access to Records/Audit
 - a. The successful Proposer's books, records, documents, and accounting procedures and practices relevant to the contract are subject to examination by the Owner. Such data are also subject to review by the Comptroller General of the United States, or a duly authorized representative, if federal funds are used for any work under the contract. The Contractor agrees to maintain such data for a period of three (3) years from the date services or payment was last provided or made or longer if any audit in progress requires a longer retention period.
4. Verbal direction will not be considered binding and in no event supersede or amend written documents, specifications, or contract documents. Only written direction will be considered binding on the Contractor, Owner, or Consultant.
5. All reference to notifications required of the Contractor to the Owner or to the Consultant must be issued in writing.
6. Default
 - a. Force Majeure: Neither party shall be held responsible for delay or failure to perform when such delay or failure is due to any of the following, unless the act or occurrence could have been foreseen and reasonable action could have been taken to prevent the delay or failure: fire, flood, epidemic, strikes, wars, acts of God, unusually severe weather, acts of public authorities, or delays or defaults caused by public carriers, provided the defaulting party gives notice as soon as possible to the other party of the inability to perform.

- b. Inability to Perform: The Contractor shall make every reasonable effort to maintain staff, facilities, and equipment to deliver the services to be purchased by the Owner. The Contractor shall immediately notify the Owner in writing whenever it is unable to (or reasonably believes it is going to be unable to) provide the agreed upon quality and quantity of services. Upon such notification, the Owner shall determine whether such inability requires a modification or cancellation of this contract.
- c. Duties to Mitigate: Both parties shall use their best efforts to mitigate any damages that might be suffered by reason of any event-giving rise to a remedy hereunder.

7. Non-Discrimination

- a. During the performance of this contract, the Contractor shall not unlawfully discriminate against any employee or applicant for employment because of race, color, creed, religion, sex, national origin, disability, age, marital status, or public assistance status. The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without unlawful discrimination because of their race, color, creed, religion, sex, national origin, disability, age, marital status, or public assistance status.
- b. Such action shall include but not be limited to the following: employment; upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices that set forth the provisions of this nondiscrimination clause.
- c. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the successful Proposer, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, religion, sex, national origin, disability, marital status, or public assistance status.
- d. The Contractor shall comply with any applicable federal or state law regarding non-discrimination.

8. Americans with Disabilities Act of 1990

- a. The Contractor shall have thorough and complete knowledge of the Americans with Disabilities Act of 1990. The Contractor also agrees to provide complete capabilities to meet or exceed all requirements of this Act for this project with regard to the products and services to be supplied by the Proposer.

9. Tobacco, Alcohol, and Illegal Drug Policy
 - a. Owner is Tobacco Free in all buildings. All employees of the Contractor and any subcontractors will be held to this regulation.
 - b. Possession and/or use of alcohol or illegal drugs are prohibited on the properties of the Owner. The Owner's published rules regarding this matter shall apply to all workers related to this project and are available upon request.
10. Vehicle and Parking Regulations
 - a. The Contractor agrees to comply with the Owner's published rules and regulations regarding vehicles and parking.
 - b. The Contractor is responsible for all motorized vehicles used in the project, and all violations identified to those vehicles.

END OF SECTION

SECTION 27 00 00 – GENERAL TECHNOLOGY REQUIREMENTS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. The provisions of the all previous front-end sections are included as part of this section as though bound herein.

1.02 DOCUMENT OVERVIEW

- A. General: Section 27 00 00 contains general technology requirements for the overall project. Sections following 27 00 00 contain general, product, and execution requirements for each technology subsystem and discipline involved in the project.
- B. Interpretation: Sections following 27 00 00 expand upon and have precedence over the requirements stated in Section 27 00 00. Proposers should bring perceived conflicts between requirements to the Consultant for clarification.
- C. Document Discrepancy Clause: In the event of an inconsistency or discrepancy in or between parts of this proposal package, the following direction will be followed and will govern: The document, section, phrase, or requirement with better quality, more stringent requirements, or greater amount or quantity of work or material will apply and shall be expected, delivered, or used. Such work or material shall be provided by the Contractor and installed at no additional cost to the Owner.
 1. The Contractor's contract has the highest precedence, if contract includes full terms and conditions of these specification documents, without exceptions.
 2. The second highest precedence is the "Document Discrepancy Clause" printed herein.
 3. The third highest precedence is any room matrices or equipment list appendices that may be included in these documents.
 4. The fourth highest precedence is the Written Specifications Work-Specific Section (27xx10, 27xx20, 27xx30, etc.).
 5. The fifth highest precedence is the Written Specifications Discipline-Specific Section (271000, 272000, 273000, etc.).
 6. The sixth highest precedence is the Project Drawings pertaining to the specific section.
 7. The seventh highest precedence is Section 270000 – E&A General Technology Requirements.

8. The eighth highest precedence is the Construction Documents, Division 1 Supplementary Conditions Section.
 9. The ninth highest precedence is the Construction Documents, Division 1 General Conditions Section.
- D. References: References to related documents do not limit or release the Contractor from the responsibility of having the necessary knowledge of other non-referenced related documents.

1.03 DEFINITIONS

The following terms may be used within this document:

- A. Documents: The complete package of Proposal and Contract Requirements, related sections, drawings and addenda that make up this Request for Proposal.
- B. Work: The provision of products and/or services to meet the requirements specified in these documents.
- C. Owner: Refers to the City of Duluth.
- D. Consultant: Refers to Elert & Associates.
- E. Proposer: A vendor who is submitting a proposal for consideration by the Owner and Consultant.
- F. Contractor: The Proposer selected by the Owner for a contract to complete the Work.
- G. Notice to Proceed: Written notice provided to the Contractor by the City of Duluth or Elert & Associates authorizing the Contractor to proceed with the Work and establishing the date for completion of the Work.

1.04 SUPERVISION OF WORK

- A. Contractor shall employ a competent project manager to be responsible and in charge of the Work. Foreman shall be on the project site daily during the execution of the Work.
- B. Contractor's project manager shall be a regular employee, principle, or officer of Contractor, who is thoroughly experienced in projects of a similar size and type. Contractor shall not use contract employees or subcontractors as project manager.

1.05 PRODUCT SUBSTITUTION PROCEDURES

- A. Requests for Substitutions: After the contract has been awarded, should the Contractor request a change in the material that is to be supplied from that

which was specified in the contract, the Contractor shall provide the Owner and the Consultant with a written request for said change that includes the reason(s) for the substitution request.

B. Requirements: The Request for Substitution must include the following:

1. Manufacturer name and model of proposed item(s), and the item(s) proposed to be replaced.
2. Reason for substitution.
3. Material data sheets for all the proposed item(s).
4. Additional materials and/or narrative that support the Request for Substitution.
5. Cost savings to the Owner, if any.

C. Approval: The Owner may approve or deny the Request for Substitution. The Owner reserves the right to govern over and proclaim whether proposal products are equal to the specifications. The Contractor shall not procure any substitute materials until the Owner has approved and signed the Request for Substitution and passed copies to the Contractor and the Consultant. Any procurement or work performed prior to this approval is at the Contractor's own risk.

1.06 EXAMINATION OF SITE AND DOCUMENTS

- A. Proposers shall examine all documents, shall visit the site(s) and record their own investigations, and shall inform themselves of all conditions under which the Work is to be performed at the site(s) of the Work, the structure of the ground, the obstacles that may be encountered, all conditions of the documents including superintendence of the Work, the requirements of temporary environmental controls, the time of completion, the list of subcontractors, and all other relevant matters that may affect the Work or the RFP process.
- B. Failure to make the examination shall not result in any change order requests.
- C. Proposers shall base their proposal on materials complying with the plans and specifications, and shall list all materials where the proposal form requires.

1.07 EXAMINATION OF EXISTING CONDITIONS

- A. Examination: The Contractor shall examine the facility and construction documents to the extent necessary to plan for efficient installation strategies prior to the delivery of materials to the site or the commencement of work. Failure to make the examination shall not result in any change order requests.

- B. Acceptance of Conditions: The commencement of work by the Contractor shall indicate acceptance of existing conditions, unless a written notice of exceptions has been provided to the Owner prior to commencement.
- C. Observation: If the Contractor observes—during preliminary examinations or subsequent work—existing violations of fire stopping, electrical wiring, grounding, or other safety- or code-related issues, the Contractor shall report these to the Owner in a timely manner.

1.08 UNIT PRICES

- A. In cases where any part of the proposal is to be received on the unit price basis, the quantities stated are approximate only, and will be used in making a comparison of proposals. Each proposer will be required to make her/his own estimates of the actual quantities involved and to calculate her/his unit price accordingly.
- B. Unit prices will be requested in the section(s) where pertinent. In the event the Proposal Form does not specifically provide a blank for requested unit prices, the Proposer is instructed to provide the unit price separately along with their proposal.
- C. The unit price may be used to add or deduct quantities of units as represented by the unit price.
- D. Failure to provide requested unit prices may result in the rejection of the Proposal.
- E. A proposal including unit prices may be rejected if it is found to be unbalanced.

1.09 COMMENCEMENT AND COMPLETION

- A. The successful Proposer must agree to coordinate the work schedule with the consultant and Owner; to commence the work on or before a date to be specified in a written “Notice to Proceed”; and to fully complete all the work per the schedule within the agreed upon schedule.

1.10 DOCUMENT USAGE

- A. All proposal documentation or other parts of this proposal package in part or in total, regardless of how obtained, will remain the property of Elert & Associates. Said documents are not to be used for any other work or project other than that for which they are commissioned. All other usage of these documents must be with prior written authorization from Elert & Associates. These documents are only intended for single facility (project) use, as named herein, and may be retained for that facility’s continued use.

1.11 DEFINITIONS

- A. Documents: The complete package of Proposal and Contract Requirements, E&A General Technology Requirements, related Division 27 sections, drawings, schedules, and addenda that make up this Request for Proposal.
- B. Work: The provision of products and/or services to meet the requirements specified in these documents.
- C. Owner: The party named in the Proposal and Contract Requirements as the advertising party.
- D. Consultant: Elert & Associates.
- E. Proposer: Vendors who are engaged in the process of submitting a proposal for consideration by the Owner and Consultant.
- F. Offeror: See Proposer.
- G. NIC: Not in Contract. This notation means that the so noted item will be provided by others and shall be incorporated into the system by the Contractor.
- H. Final Acceptance: Written confirmation from the Owner and Consultant that the Contractor has executed the terms of the contract to the satisfaction of all concerned parties.
- I. Substantial Completion: As defined by AIA – A201. Generally, it is the stage in progress of the Work when the Work is sufficiently complete and in accordance with the contract documents so the owner can occupy or utilize the work fully and without limitation for its intended use. The Substantial Completion for the work described in these documents will be reviewed and determined by the Consultant.
- J. Approved or Approval: Where approval is called for, only persons with the authorized authority may grant approval. The Owner reserves all rights to govern over and grant approval and will appoint authority of agents acting on their behalf.
- K. Contractor: The person(s) who sets forth a proposal or quote to furnish materials or labor for this project. The word Contractor will refer to Vendor, Proposer, Offeror, or Contractor depending on the phase of the project that is referenced in this document.
- L. OFE: Owner Furnished Equipment. This notation means that the so noted item will be provided by the Owner and installed by the Contractor.
- M. System: A group of interacting, interrelated, or interdependent elements forming a whole, functionally related group of elements.

- N. Standards: A requirement, method, procedure, or recommendation (guideline) defined by a group, organization, association, or committee intending to govern or provide guidelines for work that has been referenced herein this proposal package. If an actual standard does not exist, then an accepted and generally common industry practice will apply as if a true standard.
- O. As Required: The term 'As required' shall mean that the Contractor shall provide the quantity of said item that is necessary to fulfill the intent of the specifications. The Owner and the Consultant will reserve the right to make final determination of necessary quantities to provide for a complete system.
- P. Vendor: The person(s) who sets forth a proposal or quote to furnish materials specified herein for this project. The word Vendor can imply Contractor, Subcontractor, or Proposer, depending on the phase of the project that is referenced in this document.
- Q. Wrench Tight: Tighter than may be easily loosened by the fingers, but barely snug tight by a wrench and easily loosened with its use.

1.12 REFERENCE STANDARDS

- A. Standards and other procedures referenced by this proposal package are as follows:
 - 1. AIA – American Institute of Architects
 - 2. ANSI – American National Standards Institute
 - 3. BICSI – Building Industry Consulting Service International, Inc.
 - 4. CFR – Code of Federal Regulations
 - 5. IEEE – Institute of Electrical and Electronics Engineers
 - 6. NECA – National Electrical Contractors Association
 - 7. NEMA – National Electrical Manufacturers' Association
 - 8. OSHA – Occupational Safety and Health Administration
 - 9. UL – Underwriters' Laboratories
 - 10. ISO – International Organization for Standardization
 - 11. ITU-T – International Telecommunication Union – Telecommunications Standardization Sector
 - 12. NEC – National Electrical Code
 - 13. NFPA – National Fire Protection Association
 - 14. ASTM – American Society of Testing and Materials

- B. Referenced standards and/or procedures will be binding on the Contractor and all work will be judged against such standards and procedures unless otherwise stated in writing.

1.13 BASIS OF DESIGN

- A. The design of the project described within this document has been accomplished using information provided to the Consultant by the Owner that the Consultant may or may not have been able to verify.

1.14 OMISSIONS

- A. The omission of or express reference to any part(s) necessary for or reasonably incidental to a complete and fully functional system and installation as intended will not be construed as a release from the Contractor providing and installing such parts.

1.15 VALUE ANALYSIS

- A. During the design process, every attempt is made to hold the overall system cost in check with the use of equipment that can be offered by alternate sources where possible.
- B. Offeror is requested to review the material list and, where possible, offer alternatives that are equivalent to the product specified but offer a savings in overall cost.

1.16 DRAWING SYMBOLS

- A. General: Work, equipment, or material delineated or shown on any drawing in this proposal package will be expected and provided by the Contractor unless noted otherwise.
- B. Interpretation: The project scope drawings utilize symbols and schematic block diagrams to indicate various items of work. Neither of these have any dimensional significance nor do they delineate in general items required for the intended construction and installation. The work shall be installed in accordance with the intent diagrammatically expressed on the drawings and described in the written specifications. The Contractor shall not make limiting interpretation that provides for incomplete work or a non-functioning system.

1.17 PRODUCT DELIVERY REQUIREMENTS

- A. Delivery: The Contractor shall have full responsibility for delivery of all required materials to meet the requirements of these specifications. All shipping and handling fees shall be included in the Contractor's base price.

1.18 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Storage: Storage of materials will remain the full responsibility of the Contractor until Acceptance.
- B. Protection: The Contractor shall take all necessary precautions to protect materials from the following:
 - 1. Theft
 - 2. Vandalism/Tampering
 - 3. Dents
 - 4. Scratches
 - 5. Dust
 - 6. Temperature
 - 7. Weather
 - 8. Cutting
 - 9. Paint
 - 10. Other hazardous conditions
- C. Replacement: The Contractor shall replace any damaged or lost material as required by the Owner or Consultant.
- D. Installed Materials: Installed materials remain the responsibility of the Contractor until Acceptance. The Contractor shall take necessary precautions to ensure the safety of installed materials.

1.19 UNIT PRICING

- A. Unit pricing provided by the Contractor in its original proposal or any subsequent change order requests shall be used to add or deduct quantities of units in any subsequent change orders.

1.20 CONSTRUCTION PROGRESS MEETINGS

- A. The Contractor is required to attend job progress meetings for coordination in accordance with requirements set by the consultant.
- B. The Contractor is required to attend job construction and progress meetings that the Owner deems necessary.

1.21 CONSTRUCTION PROGRESS DOCUMENTATION

- A. Completion: The Contractor shall complete and submit all construction progress documentation as requested by the Owner, the Consultant, or the project General Contractor.
- B. Failure to Complete: Failure to complete requested construction progress documentation may result in the withholding of payment by the Owner.

1.22 SUBMITTAL PROCEDURES

- A. Contractor shall provide four (4) set of product submittals, of which two (2) sets will be returned to the contractor.
- B. Provision: The Contractor shall provide submittals to the Consultant prior to the procurement of equipment or commencement of work. Make corrections and additions, as necessary, to the design documents. Blue-line drawings shall be prepared and submitted on 24" x 36" paper. Equipment lists, data sheets, etc., shall be on 8½" x 11" paper, punched and inserted in a three-ring binder.
- C. Prior to Work: Submittals shall be provided to the Consultant within ten (10) days after the notice to proceed. Submittals are identified in section(s) following Section 27 00 00.
- D. Review: The submittals must be received and stamped "Reviewed" by the Consultant prior to the procurement of material or the commencement of work. Any procurement or work performed prior to this approval is at the Contractor's own risk.
- E. Project Timeline: The project timeline will not be altered due to lateness of submittals. The Contractor will remain bound to deliver a timely, complete, and finished project as stipulated in its contract.
- F. Failure to Provide: The failure of the Contractor to provide submittals as required herein may result in the withholding of payment for work and/or the cancellation of the contract.

1.23 OWNER'S REMEDY

- A. If the Contractor fails to perform the work as required by these specifications and construction documents in a timely manner or provides substandard work, the Consultant and or Owner will issue a notice document describing the needed corrective action(s). If the Contractor fails to take corrective action(s), then the Consultant will issue a notice of default including the Owner's intent to seek remedy if the default condition is not corrected promptly. The Owner reserves the right to take any and all action necessary to remedy the default condition and to back-charge the defaulting Contractor for such remedies.

1.24 CLOSEOUT PROCEDURES

- A. Notification: The Contractor shall provide written notification to the Consultant and Owner when the Contractor is satisfied that the work has been completed and is ready for inspection.
- B. Closeout Submittals: The Contractor shall provide closeout submittals to the Consultant in accordance with the requirements found in this proposal package. The Consultant shall receive the closeout submittals no less than 72 hours prior to the scheduled inspection time.

- C. Inspection: The Contractor shall be present for the inspection by the Consultant. The Contractor shall supply all testing equipment needed to verify compliance with the specifications found in this RFP package.
- D. Punch List: Work or materials found to be incomplete, of unsatisfactory quality, failing to meet the specifications in the RFP package, and/or unacceptable to the Consultant or Owner shall be documented by the Consultant and provided to the Contractor to rectify.
- E. Re-Inspection: If a re-inspection is necessary, the costs of the additional travel, hours, and expenses of the Owner and Consultant may be deducted by the Owner from the contract amount due the Contractor.
- F. Punch List Approval: The punch list shall be considered complete only after having been signed by the Owner and Consultant.
- G. Payment Authorization: Final payment will be authorized only after all closeout procedures and requirements have been followed and fulfilled by the Contractor and approved in writing by the Owner and Consultant, including punch list(s) and/or re-inspection(s).

1.25 PROJECT MANAGEMENT

- A. Project Manager: The Contractor shall appoint a Project Manager who will be the main point of contact for the Owner and the Consultant regarding the project.
- B. Responsibility: The Project Manager is responsible for the following:
 - 1. The successful completion of the contract in a timely manner.
 - 2. The work and performance of all employees and subcontractors who have been hired by the Contractor.
 - 3. Completing and submitting all required submittals and documentation.
 - 4. Attending all project coordination meetings as required by the Owner, Consultant, and General Contractor. Contractor is responsible for taking minutes of these meetings and distributing copies to all participants.
 - 5. Coordinating with Owner, Consultant, Architect, General Contractor, and other contractors involved in the project to ensure smooth flow of work and on-time project completion.
 - 6. Providing a written monthly progress update to the Owner and Consultant.
 - 7. Reporting all unexpected conditions and problems that may result in delay or expense to the Owner and Consultant immediately upon discovery.

PART TWO – PRODUCTS

2.01 BASIC EQUIPMENT AND MATERIALS REQUIREMENTS

- A. All equipment and materials used to accomplish the goals of this project shall meet the standards for good engineering practice as defined within this document.
- B. The products specified in these specifications are intended to establish a baseline or operational, functional, and performance-based standards that all proposal products must meet or exceed by functionality and quality.

2.02 FACTORY-ASSEMBLED PRODUCTS

- A. Reference to specific equipment manufacturers does not imply that all products produced by that manufacturer meet the specification requirements.
- B. The Contractor affirms that all equipment shall be new and unused with full manufacturer's warranties and supplement such warranties as required by the specification.
- C. Where a product is available from a factory/manufacturer to meet the needs as outlined, that product shall be used without modification to ensure the full factory warranty is maintained.
- D. All like materials used shall be of the same manufacturer, model, and quality unless otherwise specified.
- E. No software or firmware is to be used unless specifically authorized by the Owner or its appointed representative.

2.03 POWER DEVICES

- A. Power Strips: Unless otherwise specified, power strips shall be UL listed, surface mounted, rated for 20 amp continuous electronic loads. Outlets shall be 125 volt, 20 amp, three-wire, grounded, NEMA 5-20R. Cords shall be 12/3 SJT with molded plug.

2.04 CABLE AND CONNECTORS

- A. Cable: Cable shall be selected and applied in a manner defined by signal type, consistent with best industry practices. Highest quality products shall be used with attention given to transmission characteristics, termination methods, resistive and complex impedance at operating frequencies, and insulating material characteristics. Where required by the NEC (National Electrical Code), substitutions of air handling plenum cable shall exactly match the normally applied product and shall meet the standards of UL (Underwriter's Laboratory) Standard #900 and the NEC Articles 800 and 820.

- B. Connectors: Highest quality products shall be used with attention given to transmission characteristics, termination methods, resistive and complex impedance at operating frequencies, and insulating material characteristics. Strain reliefs and cable clamps shall be sized for the connector and the cable.

2.05 CABLE MANAGEMENT

- A. Plastic Cable Ties and Lashing Strips: Single use white nylon plastic cable ties, appropriate screw fittings, or mounting clips may be used above ceilings for wire management.
- B. Velcro Cable Ties and Lashing Strips: Below ceiling level and within equipment enclosures, Velcro wire straps shall be used. Velcro straps shall be black, with no logo or decoration, except as authorized by the Consultant.

2.06 ANCILLARY HARDWARE

- A. The Contractor will provide ancillary and required accessory items necessary to furnish to the Owner a complete and fully functional system.
- B. The exclusion of or limitation in the language used in the drawings or specifications shall not be interpreted as meaning that ancillary or accessory items of work or equipment necessary to complete or make the installed system fully functional can be omitted.

2.07 GROUNDING HARDWARE

A. Mechanical Connectors

1. The mechanical connector bodies shall be manufactured from high strength, high conductivity cast copper alloy material. Bolts, nuts, washers, and lock washers shall be made of Silicon Bronze and supplied as a part of the connector body and shall be of the two bolt type.
2. Split bolt connector types are NOT allowed.
3. The connectors shall meet or exceed UL 467 and be clearly marked with the catalog number, conductor size, and manufacturer.

B. Compression Connectors

1. The compression connectors shall be manufactured from pure wrought copper. The conductivity of this material shall be no less than 99% by IACS standards.
2. The connectors shall meet or exceed the performance requirements of IEEE 837, latest revision.
3. The installation of the connectors shall be made with a compression, tool and die system, as recommended by the manufacturer of the connectors.

4. The connectors shall be clearly marked with the manufacturer, catalog number, conductor size, and the required compression tool settings.
5. Each connector shall be factory filled with an oxide-inhibiting compound.

C. Wire

1. Material: Stranded copper (aluminum not permitted). AWG #3 and AWG #6
2. Feeder and Branch Circuit Equipment Ground: Size as shown on drawings, specifications, or as required by NFPA 70, whichever is larger. Differentiate between the normal ground and the isolated ground when both are used on the same facility.

2.08 COMPATIBILITY OF RELATED EQUIPMENT

- A. All equipment and systems specified in these documents shall be compatible with the systems already installed at the Owner site(s) and as identified in this document as related to this project.
- B. All equipment and systems proposal shall be compatible with all other equipment and systems as offered by the Contractor, thus placing the responsibility on the Contractor to ensure proper interaction.

2.09 MAINTENANCE MANUALS

- A. The Contractor shall produce a maintenance manual showing interconnection of equipment and any special procedures necessary for proper operation of the systems.

PART THREE – EXECUTION

3.01 GENERAL

- A. The Contractor shall provide, furnish, deliver, transport, erect, install, configure, and connect completely all of the material and equipment described herein or depicted on any proposal package document or drawing, and shall leave all systems in first class operating condition.

3.02 COORDINATION

- A. General: Contractor shall cooperate with other Contractors for proper provisioning, anchorage, placement, and execution of all work. Interference between the work of various Contractors shall be resolved before installation. In the event of conflict with other trades on space requirements or location, refer the matter to the Owner and the Consultant for decision.

- B. Related Work: References to the following related work do not limit or release the Contractor from the responsibility of coordination with other trades or from having the necessary knowledge of other non-referenced work.
- C. Grounding: The Contractor shall coordinate with the General Contractor its requirements for proper ground system to their equipment.
- D. Surface-Mounted Raceway
 - 1. The Contractor shall coordinate with the consultant the installation of surface-mounted-raceway where necessary.
 - 2. The Contractor shall field verify and coordinate the use of surface-mounted raceway at any location with the project Consultant and Owner.

3.03 BASIC EXECUTION REQUIREMENTS

- A. General: The Contractor is responsible for following industry standards of good practice for the listed telecommunications and networking equipment.
- B. Aesthetic Factors: With the installation of equipment and cables, consideration shall be given not only to operation efficiency but also to overall aesthetic factors. The Contractor shall redo, at no cost to the Owner, any work deemed by the consultant or owner to appear sloppy, hastily done, or unprofessional. The Owner or Owner's agent shall have final decision over whether work must be redone.
- C. Manufacturers' Recommendations: All manufactured items, materials, and equipment shall be applied, installed, connected, erected, used, and adjusted as recommended by the manufacturers or as indicated in their published literature unless specifically noted herein to the contrary.
- D. Protection of the Work Area: Work shall be properly protected during construction, including the shielding of soft or fragile materials, protecting against dust and dirt, protecting and supporting cable ends of the floor and from other trades, protecting floor box lids, and temporarily plugging open conduits during construction.
- E. Waste Materials: The Contractor shall keep work area neat, orderly, and free from accumulation of waste materials. Remove all trash and debris from the building and job site as required to maintain a clean work environment at all times. Rubbish shall be moved to a common trash point or receptacle on the job site as determined and directed by the General Contractor or Owner.
- F. Mounting: Equipment and enclosures shall be mounted plumb and square in relation to the structure.

3.04 PREPARATION

- A. Prior to any installation, the contractor shall prepare the site by removing any remaining debris, leveling equipment racks (where appropriate), and verifying all information and systems stated to be in-place are in-fact ready for use.
- B. Prior to installation, Contractor shall ensure that all required major equipment has been secured and is ready for installation.

3.05 CLEANING

- A. At the end of each work period or day, the Contractor shall remove all excess packing, drilling remnants, and other non-equipment related parts, materials, or debris to ensure a clean, safe, and professional working environment.

3.06 FIRE STOPPING

- A. The Contractor is responsible for applying fire-stopping material in and around any openings that it creates or are created for it where code or good engineering practice suggests or requires the use of fire stopping material.

3.07 RACKS, ENCLOSURES, CABINETS, AND HARDWARE

- A. Enclosures: Contractor shall assemble and install racks/cabinets and enclosures as normal operations shall be placed within the front reach limits for a user seated directed by the manufacturer.
- B. Installation Hardware: Install hardware in a secure manner. Screws shall be tightened to a torque just sufficient to secure equipment without deforming washers beyond their original diameter.
- C. Considerations: All rack mount equipment shall be secured as recommended by the manufacturer with consideration to airflow, power, and in/out connections.

3.08 GROUNDING

- A. General: Install products in accordance with manufacturer's instructions. Mechanical connections shall be accessible for inspection and checking. No insulation shall be installed over mechanical ground connections. Ground connection surfaces shall be cleaned and all connections shall be made so that it is impossible to move them.
- B. Conduit Bonding: All separate ground wires shall be enclosed in rigid galvanized steel conduit and bonded at both ends to the rigid galvanized steel conduit with an approved fitting. Install conductor in separate rigid conduit. Bond conduit as described above.

3.09 CONNECTORS

- A. Preparation: Cables shall be carefully prepared and connectors installed as directed by the manufacturer. Proper stripping devices and crimping tools shall be used.
- B. Terminations: Connectors shall be carefully fitted to mating devices on equipment to avoid damage to mating contacts, inserts, or bodies. Specialized terminations shall be made in a neat and secure manner suited to the service of the wire and as directed by the manufacturer. In all cases where the manufacturer specifies the terminations, those terminations shall be used.
- C. Soldering: A person skilled in that practice shall execute soldered terminations.
- D. Adapters: Adapters shall be used only where the identity of the necessary type of connector is unknown at the time of installation, such as for owner-provided equipment or in anticipation of future equipment upgrades, with the Consultant's approval.

3.10 EQUIPMENT INSTALLATION

- A. General: Contractor shall make system properly operational and physically secure by mounting equipment and related accessories into furniture, consoles, and racks as required. Manufacturer's guidelines for installation shall be followed. Discrepancies in installation procedure or inability to complete a given task due to a shortage of materials or malfunctioning equipment shall be reported to the Consultant immediately upon discovery.
- B. Equipment Placement: Contractor shall locate equipment as indicated on drawings and as specified herein. Where such information is not provided, follow industry practices and locate operable devices at convenient positions—heat generating devices at the top and seldom-accessed equipment below. Unless otherwise specified, end user-operable devices must be positioned within the range of front wheelchair access.
- C. Equipment Installation: Equipment shall be installed as directed by the manufacturer using equipment manufacturer's desktop mounting frames, equipment tubs, installation hardware, and techniques. Contractor shall be responsible for moving equipment from storage and for providing necessary personnel or devices to carry and lift equipment around obstacle and into operating position.

3.11 ROUGH-IN

- A. Where cabling and/or equipment is installed prior to other trades completing their work in an area, the Contractor shall take necessary precautions to cover, wrap, or otherwise protect to reduce possible damage due to plastering, painting, cleaning, or other such work.

3.12 CUTTING, DRILLING, PATCHING, AND PAINTING

- A. The Contractor is responsible for coordinating the work when any cutting or drilling is required in the performance of installing the specified systems.
- B. The Contractor is responsible for returning all surfaces (including walls, floors, and ceilings) to their previous condition after any cutting with the exception of the CAS Command Center. The walls and flooring in this space to be repaired and/or replaced by the Owner. The Security Contractor shall closely coordinate schedule of CAS demo and renovation with Owner and Owner's contractors.

3.13 LABELING

- A. All rack-mounted equipment and hardware shall be labeled as required herein.
- B. All wording and/or numbering schemes for labeling must be provided to the Consultant for review and written approval prior to procurement or installation.
- C. All labels used must be permanent and secure. Provide labeling as follows unless otherwise noted in a specific section:
 - 1. All labels shall be sized to match the other labels used for same purpose. Similarly, provide engraved labels of like size in other locations.
 - 2. Connectors, jacks, receptacles, outlets, cables, and cable terminations shall be logically and permanently marked in a manner approved by the Consultant.
 - 3. All terminal blocks, rack mounted equipment, and active slots of card frame systems shall be clearly and logically labeled in a manner acceptable to the Consultant.
 - 4. All labeling information shall appear on the as-built drawings.

3.14 TESTING

- A. Prior to energizing or testing the system, ensure the following:
 - 1. All products are installed in a proper and safe manner per the manufacturer's instructions.
 - 2. Dust, debris, solder, splatter, etc., is removed.
 - 3. Electronic devices are properly grounded.
 - 4. Each AC power receptacle is tested with a circuit checker for proper hot, neutral, and ground connections prior to plugging in equipment.

3.15 ADDITIONAL ENGINEERING SERVICES

- A. The Contractor is responsible for securing necessary engineering services where needed to meet the needs of the installation.

END OF SECTION

SECTION 27 10 00 CABLING INFRASTRUCTURE, RACEWAY AND CONDUIT

PART 1 – GENERAL

1.01 SCOPE

- A. This section describes the products and execution requirements relating to IP video security cabling, termination components, Raceway and Conduits as required for a complete turn-key IPVMS.
- B. Cabling Infrastructure includes the cabling between the camera, LAN equipment, Wireless Nodes, access points and servers.
- C. Raceway and conduits refer to the protective pathways as required to conceal Category 6, low-voltage power and high voltage electrical service to all devices. All cabling shall be concealed with raceway/conduits rated for the environment in which they are installed.

1.02 CABLE

- A. Cable Treatment: Cable shall be stored and handled to assure that it is not stretched, kinked, crushed, or abraded in any way. Bend radiuses shall meet manufacturer specifications and/or recommendations. Cable should not be installed in ambient temperatures or moisture conditions above or below the rating of the manufacturer.
- B. Splicing
 - 1. No splices shall be allowed in any cable (low-voltage power or signal) less than five hundred (500) feet in length.
 - 2. No splices shall be allowed in any Ethernet (Cat 6) cables.
- C. Lengths
 - 1. All cables, regardless of length, shall be marked with a labeling scheme approved by the Consultant.
 - 2. All cables shall be separated into like groups according to signal or power levels.
 - 3. All power cables shall be grouped rack while signal cables shall be grouped with a minimum of 6” separation from cables carrying voltages over 70-volts.
 - 4. All equipment rack wiring and cabling shall be neatly dressed.
 - 5. All cables shall have service loops.
 - 6. Rack cabling shall be adequately supported with Velcro wire wraps and horizontal support cable managers fastened to rack frame.

7. All exterior wire and cables shall be supported at least every 4 feet from the structure or as required to maintain not more than 3" cable sag between supports and without over tensioning the cables.
 8. Interior Cables:
 - a. All cables are to run at right angles to the structure, placed above ceiling in halls or corridors. Cables shall not run above red iron joist.
 - b. Concealment: The Contractor shall make every effort to conceal wiring and other apparatus into walls, floors, and ceilings, assuming code and good engineering practice allows and suggests. All cabling systems installed in public areas shall be installed within walls, ceiling, or floors or within surface wiring pathways, as dictated by codes and good engineering practice.
 9. Cable Ties and Velcro Straps: Ties and straps shall be installed snugly without deforming cable insulation. Ties shall be spaced at uneven intervals not to exceed 4-foot. No sharp burrs should remain where excess length of the cable tie has been cut.
- D. Obstruction: Contractor shall notify Owner immediately if any obstruction or hazard is discovered in a pathway provided by others.

1.03 CABLE AND CONNECTORS

- A. Cable: Cable shall be selected and applied in a manner defined by signal type, consistent with best industry practices. Highest quality products shall be used with attention given to transmission characteristics, termination methods, resistive and complex impedance at operating frequencies, and insulating material characteristics. Where required by the NEC (National Electrical Code), substitutions of air handling plenum cable shall exactly match the normally applied product and shall meet the standards of UL (Underwriter's Laboratory) Standard #900 and the NEC Articles 800 and 820.
- B. Connectors: Highest quality products shall be used with attention given to transmission characteristics, termination methods, resistive and complex impedance at operating frequencies, and insulating material characteristics. Strain reliefs and cable clamps shall be sized for the connector and the cable.

PART 2 – PRODUCTS

2.01 CABLING - GENERAL

- A. The security cabling system will consist, but not limited to, of the following:
 1. Category 6 UTP CMP Cable for interior installations
 2. Category 6 UTP outside plant gel-filled Cable for all exterior installations
 3. Termination hardware

4. Cable Support Systems
5. Conduit/Cable Pathway/Sleeve Requirements
6. Cable Testing Requirements

2.02 CATEGORY 6 UTP CABLES

- A. All cables and equipment shall be furnished, tested, installed and wired by the Contractor.
- B. All UTP cables shall terminate on RJ-45 modular patch panels in the equipment rooms (Admin, CAS or Ramp) as specified on the Drawings.
- C. This specification defines the requirements for commercially available high performance Category 6 cable.
- D. Interior cable shall be suitable for installation free-air, in building risers, in conduit, and/or in cable tray and shall carry CMP rating.
- E. Exterior cable shall be gel-filled and rated for wet environments.
- F. Cables shall be Underwriters Laboratory (UL) listed, comply with Article 800 (Communications Circuits) of the National Electrical Code, and meet the specifications of NEMA (low loss), UL 444, and ICEA. Conductor shall also conform to the requirements for solid annealed copper wire in accordance with ASTM B 3.
- G. All cables, termination components, and support hardware shall be furnished, tested, installed, and wired by the Contractor.
- H. Category 6 cables shall be Berk-Tek Lanmark 1000, General 6 or Mohawk 6 LAN Plus.

2.03 16/2 CAMERA POWER CABLE

- A. All cables and equipment shall be furnished, tested, installed and wired by the Contractor.
- B. All 16/2 power cables shall terminate to power supplies. Power supplies shall be rated for the environment in which they are installed. Power supplies shall be approved for use with the device they are supporting.
 1. This specification defines the requirements for commercially available 2-conductor 16awg copper cable.
 2. Interior cable shall be suitable for installation free-air, in building risers, in conduit, and/or in cable tray and shall carry CMP rating.
 3. Exterior cable shall be suitable for wet environments.

4. All cables, termination components, and support hardware shall be furnished, tested, installed, and wired by the Contractor.

C. The cable shall be manufactured by CommScope, Belden or General.

2.04 MODULAR JACK (CAT 6 CABLES)

A. Data jacks shall be non-keyed 8-pin modular jacks.

B. Termination components shall be designed to maintain the cable's pair twists as closely as possible to the point of mechanical termination.

C. Jacks shall utilize a four-layer printed circuit board to control NEXT.

D. Jack housings shall fully encase and protect printed circuit boards and IDC fields.

E. Modular jack contacts shall accept 2500 plug insertions.

F. Modular jack contacts shall be constructed of Beryllium copper for maximum spring force and resilience.

G. Jack termination shall be 110 IDC, integral to the jack housing, laid out in two arrays of four contacts.

H. Jacks shall terminate 22-26 AWG stranded or solid conductors.

I. Jacks shall terminate insulated conductors with outside diameters up to .050".

J. Jacks shall be compatible with single conductor 110 impact termination tools.

K. Jacks shall be compatible with EIA/TIA 606 color code labeling and accept snap on icons for identification or designation of applications.

L. Jacks shall be YELLOW in color.

M. Jacks shall be marked as either T568A or T568B wiring.

N. Category 6 jacks shall be manufactured by Leviton, Ortronics, Panduit or Systimax.

2.05 SURFACE RACEWAY/CONDUIT

A. Contractor shall provide and install surface raceway (interior) or galvanized/rigid conduit (exterior) to ensure concealment of cables. No exposed cable shall be permitted.

B. With the agreement of the Consultant and Owner, where cabling is to be installed in areas where the cabling cannot be concealed in ceiling or walls, the cable/wire serving these devices shall be covered with raceway/conduit. No exposed wire shall be permitted. Contractor shall attempt to fish hollow

walls, use existing conduit, or exhaust all other options to conceal cabling prior to installing surface raceway.

- C. The color of this raceway/conduit shall match existing wall or structure background. All fittings including but not limited to extension boxes, elbows, tees, and fixture boxes shall match the color of the raceway/conduit.
- D. The raceway/conduit and all system devices shall be UL listed, exhibit nonflammable self-extinguishing characteristics.
- E. Manufacturer recommended minimum bend radius shall be adhered to for cable.
- F. All raceway/conduit systems shall be installed complete as specified herein and in manufacturer recommendations.

2.06 CABLE PATHWAY SLEEVES

- A. The Contractor shall provide all necessary wall penetration for cable pathways whether or not specifically shown on Project Drawings.
- B. All wall penetrations shall have a metallic sleeve(s) as required to maintain a maximum 40% fill ration.
- C. All sleeves shall be properly firestopped by this Contractor.
- D. Provide all core holes, pathways and sleeves (minimum 1.25" c).
- E. Install non-metallic threadless insulating bushings on end of all conduits.
- F. Conduit Core Holes and Sleeves thru Floor: For all floor penetrations, provide IMC conduits with threaded steel couplings set flush with finish floor. Extend 6-feet above finish floor with IMC before any termination.

2.07 CABLE HOOK SYSTEMS (INTERIOR)

- A. In the areas where the cables are required to be run in a "free-air" plenum, a cable hook system shall be used.
- B. Installation and configuration shall conform to the requirements of the ANSI/EIA/TIA Standards 568A & 569, NFPA 70 (National Electrical Code), and applicable local codes.
- C. Cable hooks shall:
 - 1. Have a flat bottom and provide a minimum of 1 5/8" cable bearing surface.
 - 2. Have 90-degree radiused edges to prevent damage while installing cables.
- D. Cable hooks shall be B-Line series BCH21, BCH32 or other manufacturer that meets these specifications.

PART 3 – EXECUTION

3.01 CABLE SUPPORT (INTERIOR)

- A. J-hooks fabricated to contain data/video cables may be used to support 50 or fewer cables in each hook. J-hooks are to be fastened to building steel with beam clamps, suspended from ceiling slab with threaded rod, or anchored to the wall. All J-hooks shall be hung straight and level. No other installation technique will be authorized unless pre-approved.
- B. All cable support in the main cable path shall be installed every 5 feet.
- C. A sag shall be maintained between supports of 6", to reduce cable strain. Velcro is an appropriate method of securing cables, when properly used and not over tightened.
- D. Proper cable support is extremely important to the Owner, and care shall be taken by the Contractor to provide and install the appropriate supports. Supports found to be inadequate will be replaced.
- E. Cable bundles including video/data cabling shall not have plastic cable ties.

3.02 CAMERA CABLING

- A. Contractor shall closely coordinate and schedule cabling and camera installation with the City's event schedule.
- B. Contractor shall closely examine site and provide all requirement materials, tools, lifts and labor for a complete installation.
- C. Cameras and supporting cabling (coaxial, UTP, power) shall be located as detailed on the Project Drawings.
- D. The Contractor shall utilize these documents in determining materials quantities and routing.
- E. Station cables shall be run to the cameras in conduit, free-air above drop ceiling, in cable tray, and/or in modular furniture.
- F. All cables shall be installed splice-free unless otherwise specified.
- G. During pulling operation, an adequate number of workers shall be present to allow cable observation at all points of duct entry and exit as well as the feed cable and operate pulling machinery.
- H. Avoid abrasion and other damage to cables during installation.
- I. All cable shall be free of tension at both ends. In cases where the cable shall bear some stress, Kellom grips may be used to spread the strain over a longer length of cable.

- J. Cables shall not be attached to existing cabling, plumbing, or steam piping, ductwork, ceiling supports, or electrical or communications conduit.
- K. Manufacturers' minimum bend radius specifications shall be observed in all instances.
- L. Cable sheaths shall be protected from damage from sharp edges. Where a cable passes over a sharp edge, a bushing or grommet shall be used to protect the cable.
- M. A coil of ten (10) feet in each cable shall be placed near the end device on each end of the cable.
- N. To reduce or eliminate EMI, the following minimum separation distances from $\leq 480V$ power lines shall be adhered to:
 - 1. Twelve (12) inches from power lines of $< 5\text{-kVa}$
 - 2. Eighteen (18) inches from high voltage lighting (including fluorescent)
- O. All openings shall be sleeved and firestopped per prevailing code requirements upon completion of cable installation.

3.03 CABLE TERMINATION

- A. At the equipment rooms, all data and voice cables shall be positioned on termination hardware in sequence of the outlet ID, starting with the lowest number.
- B. Termination hardware (blocks and patch panels) positioning and layout will be reviewed and approved by the Consultant prior to construction. The review does not exempt the Contractor from meeting any of the requirements stated in this document.
- C. Cable Termination – Data/Voice UTP
 - 1. At information outlets and data/voice patch panels, the installer shall ensure that the twists in each cable pair are preserved to within 0.5 inch of the termination for data/voice cables. The cable jacket shall be removed only to the extent required to make the termination.

3.04 SURFACE RACEWAY/CONDUIT

- A. This section describes the execution requirements relating to IP video Raceway and Conduits as required to conceal security device cabling.
- B. All conduit shall be metallic and shall be rated for the environment it is installed.
- C. With the agreement of the Owner, if a camera is required in an area where the cable cannot be concealed in walls, ceiling, etc., the cable serving these

cameras shall be covered with raceway. No exposed cable shall be permitted. Contractor shall attempt to fish hollow walls, use existing conduit, or exhaust all other options to conceal cabling prior to installing surface raceway.

- D. 1” Minimum bend radius shall be adhered to for all cable.
- E. Raceway/conduit is to be installed and painted to match the color of the background structure.
- F. All surface raceway/conduit shall be mounted level and plumb. Where the Owner considers raceway/conduit channels to be installed unsatisfactorily, the Contractor shall remove and replace necessary channels at no additional cost to the Owner.

3.05 TEST DATA – CABLE

- A. Category 6 UTP Cable:
 - 1. Category 6 cabling testing shall be end to end.
 - 2. Cables shall be free of shorts within the pairs and shall be verified for continuity, pair validity and polarity, and wire map (conductor position on the modular jack). Any defective, split, or mispositioned pairs shall be identified and corrected.

END OF SECTION

SECTION 27 20 00 DATA COMMUNICATIONS NETWORK EQUIPMENT

PART 1 – GENERAL

1.01 REFERENCE

- A. The provisions of Section 27 00 00 – General Technology Requirements are included as a part of this section as though bound herein.

1.02 QUALIFICATIONS

- A. Contractor or approved subcontractor must be an authorized dealer/supplier of the manufacturer whose products it is proposing.

1.03 SUMMARY/OVERVIEW

- A. The Work to be described in this section includes the hardware, installation, configuration, and support related to the local area network (LAN) equipment to which the video surveillance system will be connected.
- B. The video security network will be connected to the City's overall LAN, not on a separate physical network. Traffic separation will be provided via VLAN configuration.
- C. Responsibilities of the Contractor (see following sub-sections for additional detail):
 1. Work with City MIS personnel to determine system parameters for the provided devices, including how they will function as part of the City's overall network.
 2. Configure the switches with the agreed upon settings.
 3. Install equipment into existing racks and connect to electrical power.
 4. Interconnect network switches to video components and, as appropriate, other City network devices.
 5. Provide and label cables to and from the provided equipment.
 6. Test switch functionality and provide written documentation.
 7. Provide 12 months of maintenance and support, including software updates, within the base pricing. If the City accepts the Alternate for Years 2 and 3 maintenance and support, the Contractor shall be responsible for those services for that term.

1.04 NETWORK SCOPE SUMMARY

- A. Description – The scope of this project covers the provision and installation of LAN electronics to interconnect video security surveillance system equipment, and to connect those systems to the City's LAN.

- B. The required network components include two (2) Ethernet switches. One of these shall be installed in an existing rack at the Lakewood Water Treatment facility in replacement of an existing 3Com switch. The second shall be installed in an existing cabinet at the City Hall Data Center to support the video servers, appliances, computer, and other video surveillance system equipment placed at City Hall.

1.05 COORDINATION

- A. Refer to Section 27 00 00 – E&A General Technology Requirements.
- B. The Contractor shall re-verify installation locations with the Owner’s Project Manager prior to installation.
- C. Shipping delays are the sole responsibility of the Contractor.
- D. If there appears to be insufficient space in any rack in which equipment is to be installed, Contractor must notify the Consultant and Owner Project Manager immediately and wait for a decision before proceeding with installation at that location.

1.06 CUTOVER NOTIFICATION

- A. Cutover from existing system to new system shall be scheduled with the Owner at least two weeks prior to occurrence.

1.07 OVERALL NETWORK REQUIREMENTS

- A. All LAN equipment and materials used will meet the standards for good engineering practice as defined within this document.
- B. The Contractor will have full responsibility for delivery of all required materials to meet the requirements of these specifications.
- C. Storage of materials will remain the full responsibility of the Contractor until Final Acceptance.
- D. Protection – The Contractor will take all necessary precautions to protect materials from the following:
 - 1. Theft
 - 2. Vandalism/Tampering
 - 3. Dents
 - 4. Scratches
 - 5. Dust
 - 6. Temperature
 - 7. Weather
 - 8. Cutting

- 9. Paint
- 10. Other hazardous conditions
- E. The Contractor shall replace any damaged or lost material as required by the Owner.
- F. Manufacturer's installation and set up requirements will be followed unless specifically authorized by the Owner or its appointed representative.
- G. Shelves and Mounts: Contractor will supply necessary mounting hardware to install rack-mounted LAN equipment. Mounting hardware shall be a product of the manufacturer of the equipment to be mounted, or manufacturer of the rack system, or approved by either for use with their product. Provide supporting channels, shelves, rack mounts, and/or rack ears as recommended by equipment manufacturer.

PART TWO – PRODUCTS

2.01 GENERAL

- A. Refer to Section 27 00 00 – E&A General Technology Requirements.

2.02 LAN PRODUCT REQUIREMENTS

- A. Approved Ethernet switch products: Juniper model EX4200 24-port POE+ and Cisco Systems 3750X-24P-S 24-port POE+ with IP Base to IP Services factory IOS upgrade.
- B. Contractor shall provide appropriate power supply modules to support POE+.
- C. Switches must be provided with the most current software version, unless otherwise requested by the Owner.
- D. Contractor shall provide all necessary Category 6 patch cables to complete all interconnections to local network and video equipment.

2.03 MISCELLANEOUS MATERIAL

- A. Refer to Section 27 00 00 – E&A General Technology Requirements.
- B. Contractor shall provide additional system components typically and reasonably required to make system operational even though not specifically indicated in drawings, appendices, or specifications, including but not limited to patch cables, connectors, connecting accessories, adaptors, power supplies, power cords, rack mounting adapters and shelves, cover plates and closure panels, relays and switches, remote antenna mounts, terminal blocks, and related connector and termination hardware required by but not supplied with the equipment.

PART THREE – EXECUTION

3.01 REFERENCE

- A. The provisions of Section 27 00 00 – E&A General Technology Requirements are included as a part of this section as though bound herein.

3.02 DELIVERY

- A. The materials/equipment shall be delivered to its proper location by the Contractor without additional cost or expense to the Owner, which shall not be deemed to have accepted any equipment until the Date of Acceptance

3.03 CONFIGURATION AND INSTALLATION

- A. All locations will be cutover outside of normal business hours to avoid any disruption of service. The Proposer must include the cost to cut over all systems after normal business hours.
- B. The Contractor is responsible to follow industry standards and follow all LAN manufacturer installation and maintenance practices.
- C. All naming standards/schema to be used in configuration, installation, and documentation must be pre-approved by Owner.
- D. The Contractor shall unpack equipment from shipping material and organize equipment. This includes checking to ensure that all equipment is complete and fully functional. Empty boxes and packaging shall be neatly organized per the Owner's instructions, and removed if requested.
- E. The Contractor is responsible to work with the Owner to understand its IP addressing scheme and to implement this scheme in the furnished devices.
- F. The Contractor is responsible to work with the Owner to understand the Owner's VLAN plan and to implement this plan in the furnished system.
- G. The Contractor is responsible to work with the Owner to develop SNMP configurations, community strings, and passwords for the furnished devices and to implement these in the furnished devices.
- H. The Contractor is responsible for the removal of the existing 3Com switch at the Lakewood facility. Contractor shall provide the removed switch to City, or properly dispose of it if so requested by City.
- I. Contractor shall install, configure, and test all data network electronics equipment.
- J. Contractor shall connect all copper patch cables to provided devices.
- K. Contractor shall install all interconnecting cables to complete the overall network connectivity required.

- L. Contractor shall design and implement operating system settings, LAN and QoS configurations on provided data switch equipment.
 - M. All data electronics supplied in this proposal must be grounded per manufacturer's guidelines.
- 3.04 LABELING
- A. Labels must be printed in non-water soluble ink and machine generated (hand printed labels are not acceptable).
 - B. Every switch must be clearly labeled with IP address and switch name/designation on the front of the device.
 - C. All patch cables installed by Contractor must be labeled according to TIA/EIA 606 standards and must indicate connections at both ends.
- 3.05 LAN TESTING REQUIREMENTS
- A. Contractor must demonstrate to the Owner's Project Manager IP connectivity between the switch at Lakewood and the City Hall data center.
 - B. Equipment must run 30 consecutive days without an equipment hardware failure (operator errors excluded). Failure during that time will require replacement of the failed equipment and another 30-day period for that equipment.
 - C. Contractor shall gather statistics from the installed equipment showing uptime results for the first 30-day period, separately for each piece of equipment installed as part of contract.
- 3.06 DOCUMENTATION
- A. When installation is complete, Contractor shall furnish Owner with two complete sets (in three-ring binders) of project documentation and one complete set of manufacturer hardware and software manuals.
 - B. All naming standards/schema to be used in documentation must comply with existing Owner standards and be pre-approved by Owner's Project Manager.
 - C. Acceptable documentation formats include Microsoft Word, Microsoft Excel, and Microsoft Visio.
 - D. Documentation must include uptime results (as noted in Testing sub-section) for the first 30 days.
 - E. Documentation shall include passwords, logins, SNMP configurations, community strings, VLAN configuration, QoS configuration, operating settings, and all necessary information to manage all provided devices.

- F. VLAN documentation must show complete configuration, including VLAN names, ports included, and descriptions of the VLANs' function, usage, and interoperability across network.

3.07 PROJECT CLOSEOUT AND ACCEPTANCE

- A. Refer to Section 27 00 00 – E&A General Technology Requirements.
- B. Acceptance shall occur after all of the following conditions are met:
 - 1. 30 consecutive days with 99 percent or better availability.
 - 2. All of the work has been completed in accordance with the contract and RFP specifications (including testing procedures).
 - 3. The system operates in conformance with manufacturer's published specifications.
 - 4. All of the documentation requirements have been met.
 - 5. Contractor has certified in writing to the Consultant and Owner Project Manager that the system is installed, operational in accordance with these specifications, and ready for use.
 - 6. Owner or Owner's designated representative has inspected the installation and provided written approval.
- C. At this time, upon the Owner's written acceptance, operations control becomes the responsibility of the Owner. This constitutes Date of Acceptance.

END OF SECTION

SECTION 28 21 00 – WIRELESS NETWORK INFRASTRUCTURE

PART 1 - GENERAL

1.01 SYSTEM DESCRIPTION

- A. The Video Surveillance System (IPVMS) requires a multi-service mesh system for these outdoor cameras that can securely handle concurrent video, voice, and data applications. This solution will operate as a distributed switch, combining the services and scalability of Ethernet with the freedom and mobility of wireless. The product must work seamlessly between indoor and outdoor environments and operate in 2.4 GHz, 4.9 GHz, and 5 GHz spectrums. The wireless system shall work at multi-levels and with layered security at the access point(s) and across the mesh. The communication between the mesh nodes shall be self-forming and offer the capabilities of redundant pathways or links to the mesh network whenever feasible. This wireless system utilized will have a mesh software management application included for viewing and managing both the mesh nodes and access point networks together in one single platform.
- B. Basic System Components and characteristics:
1. Mesh Nodes: The wireless mesh will operate as a distributed Ethernet switch with self-forming, self-healing capabilities for rapidly deployable, resilient and reliable infrastructure. Any Ethernet device could “plug-n-play” into this mesh infrastructure. These mesh nodes, with dual radios dedicated for backhaul, provide a secure, low latency, high performance infrastructure for multiple triple-play applications. These units will be used with a variety of high-gain antennas and come equipped with a flexible mounting bracket for pole or wall mounting.
 2. Access Points: The wireless access points deliver a modular access solution for wireless mesh networks. These access points can easily integrate into an IP infrastructure with minimal configuration changes. Modular design enables independent physical placement of the hardware to provide optimal accessibility for Wi-Fi clients. These enterprise-quality 802.11 a/b/g access points will fully integrate with a mesh and are managed by the same software platform.
 3. Software management system: The management system will provide a centralized management and control of this single mesh network with an intuitive web based user interface. It will be a sophisticated, yet simple-to-use platform for full FCAPS capabilities. This management software will incorporate a number of flow control, traffic prioritization and management capabilities to deliver high throughput and low latency needed to support concurrent voice, video and data communications.

- C. Mode of Operation: The mesh network shall have a latency of 1.5 ms between backhaul nodes in each hop. The mesh network will be built utilizing dual radio mesh nodes that can be configured to operate in the following modes:
1. Bonded Mode: In the “bonded” mode, both radios are combined to operate as a single unit that provides double the bandwidth of a single radio equivalent. This is ideal for bandwidth-intensive application such as video surveillance, resulting in crystal clear video images. This mode also provides a “fat pipe” for point to point wireless backhaul — for example, to connect two mesh networks. The bonded mode of operation in the dual radio shall deliver up to 70 Mbps throughput
 2. Linear Mode: In the “linear” mode, both radios operate independently enabling sustained bandwidth levels over an unlimited number of hops. This enables long linear topologies, such as when networking a railway line, and provides a sustained level of service to every node, which is also critical for large municipal networks The linear mode of operation shall deliver 35 Mbps raw throughput sustained over multiple hops.
- D. Scalability: The mesh architecture will be scalable up to 1000 nodes across multiple locations. To extend the scalability, network bridging features need to be available when using wired infrastructure too. The mesh system must offer the ability to add access points/other devices through simple Ethernet connections as well as have the ability of the nodes for self-discovery mitigates the challenges of network expansion that are normally observed with wired networks.
- E. Security: This solution will provide a comprehensive multi-layer security. The mesh security measures are listed below for both access layer and the backhaul layer.
1. Access Layer: Nodes will support a variety of security protocols, enabling secure and reliable wireless networks for video, voice and data. The access points will be designed to protect Wi-Fi clients connected to it from the security attacks from the wired network. These features are:
 - a. Proxy-ARP
 - b. NAT
 - c. Radius Authentication
 - d. SSID Suppression
 - e. VLAN support
 - f. Digital Certificate on Nodes.
 - g. MAC Access Control Lists
 - h. 802.11i, WPA2, AES

2. Backhaul Layer: The nodes will provide a filtering function that allows network managers to specify which MAC addresses are permitted to operate on the mesh. The protocol prevents non-system devices from participating on the mesh. Additionally, the system will provide an advance authentication feature where in the network administrator can assign digital certificates to determine which nodes can form a part of the network. The system will be capable of providing an encryption mechanism wherein packets are encrypted and decrypted between every hop on the backhaul with minimal impact on either latency or bandwidth.
 3. Integrated Network Security: AES strong encryption ensures data is securely transported across the mesh network, preserving data integrity and ensuring privacy. VLAN support enables traffic to be separated into smaller groups and application specific LANs.
- F. Compatibility: This mesh network will provide a distributed Ethernet switch-like infrastructure. A Layer 2 (Ethernet) interface of the mesh will bring full interoperability with all networking equipment (routers, switches, access points) or network-connected devices (surveillance cameras in this application but also with printers, computers, and sensors etc., if applicable). The access points will provide the network interface for Wi-Fi clients and operate in IEEE 802.11b/g modes. Each access point will connect to the backhaul network on regular Ethernet connection. The access point can be connected to any backhaul network, mesh node or otherwise.

1.02 WIRELESS MESH/ACCESS POINT INFRASTRUCTURE

- A. Wireless Mesh and Wireless Access points shall be the primary communication method for the IPVMS infrastructure.
- B. Approved Manufacturers:
 1. Firetide Model #7000 series Mesh Nodes, Firetide #4600 series access points and Firetide HotView PRO mesh management software.
 2. Approved equal
- C. Warranty: Manufacturer shall warrant the wireless components to be free from defects in material and workmanship for ONE year from the purchase date. There shall be a ninety day limited warranty for the management software.

1.03 CELLULAR BROADBAND COMMUNICATION

- A. Various areas of this Video Surveillance System (IPVMS) require a cellular broadband modem for communication of video images back to the head-end video server. This device will operate as an intelligent gateway to the network and will support 24/7 always-on availability, persistent connectivity, end-to-end security, real-time two-way data exchange and remote device

management. This technology must be able to operate within multiple communication technologies and be rugged enough in design to withstand a portability constraints along with a wide range of environmental situations.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Refer to Section 27 00 00 – E&A General Technology Requirements.

2.02 WIRELESS MESH INFRASTRUCTURE (MESH NODES OR MESH ROUTERS)

- A. The wireless mesh nodes shall be self-forming and self-healing.
- B. The wireless mesh infrastructure shall provide link redundancy and high reliability.
- C. The wireless mesh infrastructure shall provide distributed Ethernet switch functionality
- D. The wireless mesh nodes shall be modular and not share any radios with access point functionality.
- E. The wireless mesh nodes shall comply with all Ethernet transport standards.
- F. The wireless mesh nodes shall be available in both indoor and outdoor models.
- G. The manufacturer shall provide one year warranty on the hardware.
- H. Networking Standards Supported:
 - 1. The mesh nodes shall support IEEE 802.3 Ethernet transport standards
 - 2. The mesh nodes shall support IEEE 802.11 a,b,g standards on the radio
 - 3. The mesh nodes shall support IEEE 802.1p standards for Quality of Service and traffic prioritization
- I. Radio Requirements
 - 1. The wireless mesh node shall support up to two radios dedicated for backhaul switching capability.
 - 2. The wireless mesh nodes shall support IEEE 802.11a, 802.11b, 802.11g protocols
 - 3. The wireless mesh nodes shall operate in 2.4GHz, 5GHz and the licensed 4.9 GHz band on the same hardware.
 - 4. The wireless mesh nodes shall be FCC certified

5. The wireless mesh nodes shall support a maximum output power of 400 mW.
6. The wireless mesh nodes shall support the following receive sensitivities:
 - a. 2.4 GHz, DSSS:
 - i. 1 Mbps: -95 dBm ;
 - ii. 11 Mbps: -88 dBm
 - b. 2.4 GHz, OFDM:
 - i. 6 Mbps: -90 dBm;
 - ii. 54 Mbps: -73 dBm
 - c. 5 GHz, OFDM:
 - i. 6 Mbps: -90 dBm;
 - ii. 54 Mbps: -73 dBm
7. The wireless mesh nodes shall provide ability to eliminate weak radio links in the network.
8. The wireless mesh nodes shall provide the ability to configure any channel in the specified frequency bands.
9. The wireless mesh nodes shall support Dynamic Channel Allocation for optimal RF performance.
10. The wireless mesh nodes shall support transmit power control (TPC).
11. The wireless mesh nodes shall provide software control over the two radios for different radio configurations
12. The wireless mesh node shall provide the capability to logically combine the two radios in “Bonded Mode” of operation for higher bandwidth.
13. The wireless mesh nodes shall provide the ability to recover neighbor radio nodes in different bands and frequencies.

J. Networking & Interfaces

1. The outdoor wireless mesh nodes shall support three 10/100 Base-T Ethernet ports using weatherproof connectors.
2. The indoor wireless mesh nodes shall provide four (4) 10/100Base-T Ethernet switch ports using RJ45 connectors.
3. The wireless mesh nodes shall provide a mix of radio and Ethernet interfaces over the routing domain.
4. The wireless mesh nodes shall provide the ability to connect to each other over Ethernet

5. The wireless mesh nodes shall provide the ability to bridge multiple remote wireless mesh networks over IP.
6. The wireless mesh node shall provide the ability to seamlessly integrate with a backbone IP network.
7. The wireless mesh network shall be capable of providing a dynamic backup network in case of failure in the wired network
8. The wireless mesh shall support up to 4094 VLAN
9. The wireless mesh networks shall support configuration of static routes.
10. The wireless mesh network shall support the ability to eliminate weak links.
11. The wireless mesh network shall support multicast capabilities

K. Throughput Requirements

1. The wireless mesh node shall support up to 70 Mbps throughput in a bonded mode of operation.
2. The wireless mesh node shall support up to 35 Mbps sustained throughput across multiple hops within the mesh.
3. The wireless mesh solution shall support sustained throughput performance for 10 hops or more.
4. The wireless mesh node shall support low latency of the order of 1.5 ms (average) per hop.

L. QoS Requirements

1. The wireless mesh network shall have simultaneous support for video, voice and data multi services.
2. The wireless mesh nodes shall support port based QoS and 802.1p standards based QoS.
3. The wireless mesh nodes shall support VLANs and VLAN trunking.
4. The wireless mesh nodes shall provide load balancing on alternate routing paths between source and destination MAC.

M. Management Requirements

1. The management system shall support a single point interface for full FCAPS capabilities for all
2. The wireless mesh nodes shall provide management interfaces via HTTP, SNMP, GUI.

3. The management architecture shall be client-server architecture with multiple clients logging into the server.
4. The management station shall provide statistics and alarms and events.
5. The hardware shall provide system status LEDs for power, mesh, faults.
6. The wireless mesh node shall support remote software upgrade ability.
7. The wireless mesh node shall support telnet access.

N. Security Specifications

1. The wireless mesh nodes shall support user name and password security for all networking interfaces.
2. The wireless mesh nodes shall support hardware based encryption.
3. The wireless mesh nodes shall have the capability to distinguish between radios that are part of their network from radios that are not.
4. The wireless mesh nodes shall support manufacturing based digital certificates on each node that authenticates with the network.
5. The digital certificate mechanism shall have the ability to have user defined / signed certificates.
6. The wireless mesh nodes shall have digitally signed firmware files.
7. The wireless mesh nodes shall have the ability to lockout malicious users as they try to access the network.
8. The wireless mesh nodes shall support 256-bit AES, 40/104 bit WEP.
9. The security encryption standards on the wireless mesh nodes shall be FIPS certifiable.
10. The wireless mesh nodes shall support ESSID encryption.
11. The wireless mesh nodes shall support MAC address filtering.
12. The wireless mesh nodes shall support broadcast rate limiting.
13. The wireless mesh nodes shall support the ability to remotely control the Ethernet ports
14. The hardware shall provide for physical security via a lockable mounting bracket.

O. Scalability Requirements

1. The wireless mesh nodes shall support mesh networks of up to 1000 nodes.

2. The wireless mesh networks shall provide the ability to have Ethernet interfaces as part of the routing domain to make use of the wire where it is available.
3. The wireless mesh nodes shall provide the ability to bridge multiple wireless mesh networks over IP.
4. The wireless mesh nodes shall support multiple gateway interfaces for large networks and increased throughput.

P. Power Requirements

1. All wireless hardware units shall support 90–240 VAC, 50/60 Hz, 0.9A.
2. The hardware units shall support 16 VDC input at the same time.
3. The outdoor wireless mesh nodes shall support DC pass through on the Ethernet connectors.
4. The outdoor wireless mesh nodes shall support 802.3af PoE standard (PS: Power Source) and be able to power two devices that are capable of deriving power over Ethernet.

Q. Physical & Environmental Requirements

1. The wireless mesh nodes enclosure shall be rugged NEMA 4X/IP67 rated for outdoor deployments.
2. The wireless mesh nodes shall support optional surge suppression protection.
3. The wireless mesh mesh nodes shall be plenum rated for indoor use.
4. The outdoor mesh nodes shall have weather proof antenna connectors.
5. The outdoor devices shall be pole and/or wall mountable (with low profile mounting).
6. The outdoor mesh nodes shall provide an optional sunshield for environmental protection.
7. The indoor devices shall be ceiling, or wall mountable.
8. The wireless mesh nodes shall be ROHS & WEEE compliant.
9. The outdoor units shall have the following environmental specifications –
 - a. Operating temperature: -40°C to +60°C
 - b. Storage temperature: -40°C to +85°C
 - c. Humidity (non-condensing) - 10% to 90%
 - d. Storage humidity (non-condensing) - 5% to 95%

e. Maximum altitude 15,000 feet (4600 meters)

10. The indoor units shall comply with the following specifications:

- a. Operating temperature: 0°C to +60°C
- b. Storage temperature: -20°C to +70°C
- c. Humidity (non-condensing) - 10% to 90%
- d. Storage humidity (non-condensing) - 5% to 95%
- e. Maximum altitude 15,000 feet (4600 meters)

11. Antennas

- a. Suitable antenna types shall be provided as required to provide necessary wireless connectivity.
- b. Antennas provided must be certified by the FCC to work with the provided wireless equipment.
- c. Antenna shall be approved by the Node manufacturer.
- d. Contractor shall assess and install the most applicable antenna system as determined necessary for each location based upon prior signal testing and to obtain maximum signal connectivity.

R. Approved Manufacturers:

- 1. Firetide Model #7000 series Mesh Nodes and HotView PRO mesh management software.
- 2. Approved equal

2.03 WIRELESS ACCESS POINTS (AP)

A. General Requirements

- 1. The wireless access point shall support IEEE 802.11 b/g modes of operation.
- 2. The wireless access point shall provide access functionality in 2.4 GHz spectrum.
- 3. The wireless access point shall be modular and physically separate from any backhaul wireless mesh device.
- 4. The wireless access point shall be available in both indoor and outdoor models
- 5. The manufacturer shall provide one year warranty on the hardware.

B. Radio Requirements

1. The wireless access point shall support a maximum output power of 400 mW.
2. The wireless access point shall support the following receive sensitivities:
 - a. 2.4 GHz, DSSS
 - i. 1 Mbps: -95 dBm
 - ii. 11 Mbps: -88 dBm
 - b. 2.4 GHz, OFDM
 - i. 6 Mbps: -93 dBm
 - ii. 54 Mbps: -74 dBm
3. The wireless access point shall provide the ability to configure any channel in the above frequency bands.
4. The wireless access point radio shall be FCC certified.
5. The wireless access point shall support up to 2 external antennas for diversity.
6. The wireless access point shall support manual transmit power control (TPC).
7. The wireless access point shall support Dynamic Channel Allocation for optimal RF performance.
8. The wireless access point shall support a minimum of 16 SSIDs per physical access point.
9. The wireless access point shall provide the ability of creating virtual access points with each one spanning across multiple physical access points.
10. The wireless access point shall support at least 64 concurrent users at the same time.
11. The wireless access point shall support manual configuration of RTS-CTS thresholds for client communication.

C. Networking & Interfaces

1. The indoor wireless access point shall provide at least one Ethernet interface (RJ45)
2. The outdoor wireless access point shall provide at least one weatherproof Ethernet interface consistent with IEEE 802.3af (PoE / Powered Device)

3. The wireless access point shall support DHCP client as well as DHCP server functionality.
4. The wireless access point shall support WDS (Wireless Distribution System) mode of operation.

D. QoS Requirements

1. The wireless access point shall support multiple (16) independent VLANs.
2. The wireless access point shall support 802.11e (WMM) quality of service standard.
3. The wireless access point shall support per user and per virtual access point rate limiting.
4. The wireless access point shall support multicast traffic (voice, video and data)
5. The wireless access point shall provide the infrastructure to support SLA on end user bandwidth allocation.
6. The wireless access point shall provide the infrastructure to support policy management on client connections.

E. Management Requirements

1. The wireless access point shall provide management interfaces via HTTP, SNMP, GUI.
2. The management architecture shall be client-server architecture with multiple clients logging into the server.
3. The management station shall provide statistics and alarms and events on a per radio basis.
4. The hardware shall provide system status LEDs for power, status, uplink and access.
5. The wireless access points shall support telnet access.
6. The wireless access point shall support remote software upgrade ability.
7. The wireless access points shall also support a command line interface (CLI) for management.
8. The vendor shall provide the ability to group access points together in administrative domains and be able to configure group of access points together.

F. Security Requirements

1. The wireless access point shall support VPN tunneling and filtering.

2. The wireless access point shall support intra-cell blocking
3. The wireless access point shall support 40 bit and 104 bit WEP keys, 128 bit and 256 bit AES keys
4. The security encryption standards on the wireless access points shall be FIPS certifiable.
5. The wireless access point shall support 802.11i, WPA2, and RADIUS authentication.
6. The wireless access point shall support Rogue AP detection and isolation.
7. The wireless access point shall support SSID suppression.
8. The wireless access point shall support MAC address filtering.
9. The wireless access point shall support user name and password security for all interfaces.
10. The wireless access point shall support manufacturing based digital certificates on each node that authenticates with the network.
11. The digital certificate mechanism shall have the ability to have user defined / signed certificates.
12. The wireless access point shall have digitally signed firmware files.
13. The wireless access point shall have the ability to lockout malicious users as they try to access the network.
14. The wireless access point shall provide for physical security via a lockable mounting bracket that can clamp together with the mesh nodes.
15. The wireless access point shall support NAT and firewall functionality.
16. The wireless access point shall support Captive Portal management – Walled Garden mechanism.
17. The wireless access point shall support Proxy-ARP

G. AP - Controller Features

1. The wireless access point shall support IAPP protocol, IEEE 802.11f
2. The wireless access point shall be configurable from a centralized AP controller
3. The wireless access point shall be able to establish secure tunneled connectivity to the controller
4. The AP controller shall support centralized Channel Allocation mechanism for all the wireless access points

5. The AP controller shall provide centralized Coverage Area planning and gap detection for all the wireless access points
6. The AP controller shall provide centralized transmit power control mechanisms for all the wireless access points

H. Power Requirements

1. The wireless access point shall support 90–240 VAC, 50/60 Hz.
2. The wireless access point shall support 16 VDC input.
3. The wireless access point shall have an option of being PoE with any device that is capable of delivering PoE.

I. Physical & Environmental Requirements

1. The wireless access point enclosure shall be rugged NEMA 4X/IP67 rated for outdoor deployments.
2. The wireless access points shall be plenum rated for indoor use.
3. The outdoor access points shall have weather proof antenna connectors. The outdoor devices shall be pole and/or wall mountable (with low profile mounting).
4. The indoor devices shall be ceiling or wall mountable.
5. The outdoor units shall have the following environmental specifications
 - a. Operating temperature: -20 °C to +55 °C (-4 °F to +131 °F)
 - b. Storage temperature: -40 °C to +70 °C (-40 °F to +158 °F)
 - c. Humidity (non-condensing) - 10% to 90%
6. The indoor units shall comply with the following specifications
 - a. Operating temperature: 0 °C to +50 °C (32 °F to +122 °F)
 - b. Storage temperature: -20 °C to +70 °C (-4 °F to +158 °F)
 - c. Humidity (non-condensing) - 10% to 90%
7. Antennas
 - a. Suitable antenna types shall be provided as required to provide necessary wireless connectivity.
 - b. Antennas provided must be certified by the FCC to work with the provided wireless equipment.
 - c. Antenna shall be approved by the access point manufacturer.

- d. Contractor shall assess and install the most applicable antenna system as determined necessary for each location based upon prior signal testing and to obtain maximum signal connectivity.

J. Approved Manufacturers:

1. Firetide #4600 series access points and Firetide HotView PRO mesh management software.
2. Approved equal

2.04 CELLULAR BROADBAND COMMUNICATION

A. The cellular broadband modem for communication of video images back to the head-end video server shall operate as an intelligent gateway to the network and will support 24/7 always-on availability, persistent connectivity, end-to-end security, real-time two-way data exchange and remote device management. This technology must be able to operate within multiple communication technologies and be rugged enough in design to withstand a portability constraints along with a wide range of environmental situations.

B. Basic System Components and Characteristics of Broadband Modem:

1. Persistent 3G Network connectivity with the following communication platforms available:
 - a. HSUPA with fallback to HSPDA, UMTS, EDGE, GPRS, GSM or
 - b. EV-DO Rev. A with fallback to CDMA, EV-DO Rev.0, CDMA 1x, CDMA IS-95
2. Communications bands compatibility:
 - a. Tri-band UMTS/HSDPA/HSUPA 850,1900, 2100 MHz or
 - b. Dual –Band EV-DO Rev. A 800, 1900 MHz or
 - c. Quad-Band UMTS/HSDPA/HSUPA 850, 900 1900 2100 MHz
3. Host Interface options:
 - a. Ethernet: 10BASE-T-RJ-45
 - b. USB Type B5 Pin mini
4. Antenna Connections – cellular 50 Ohm SMA, receive diversity – 50 Ohm SMA
5. Application Interfaces:
 - a. TCP/IP
 - b. UDP/IP

- c. DHCP
 - d. HTTP
 - e. SNMP
 - f. SMTP
 - g. SMS
 - h. MSCI
6. Environmental
- a. Operating temperature -30 to +70 Degrees C / -22 to +158 Degrees F
 - b. Storage temperature -40 to + 85 Degrees C / -40 to -185 Degrees F
7. Standards/Approvals
- a. FCC
 - b. Class I Div 2
 - c. RoHS
 - d. Carrier specific approvals
 - e. PTCRB
 - f. CE
 - g. A-Tick
8. The Broadband Cellular Communication link will be the primary communication method for the Video cameras to be located at the Highway 39 Bridge location and the Portable Video Surveillance Kit (Alternate)
9. Warranty: Manufacturer shall warrant the cellular communication equipment to be free from defects in material and workmanship for ONE year from the purchase date.
10. The City of Duluth will be responsible for contracting directly to a third party broadband service provider.
11. Antennas
- a. Suitable antenna types shall be provided as required to provide necessary connectivity.
 - b. Antennas provided must be certified by the FCC to work with the provided wireless equipment.

- c. Antenna shall be approved by the device manufacturer for use with devices that the antenna is connected.
- d. Contractor shall assess and install the most applicable antenna system as determined necessary for each location based upon prior signal testing and to obtain maximum signal connectivity.

12. Approved Manufacturers:

- a. Sierra Wireless/ Airlink Model Raven XE with only manufacturer approved signal boosters.
- b. Approved equal

PART 3 - EXECUTION

3.01 INSTALLATION PRACTICES

- A. All services provided shall be professional and conform to the highest standards for industry practices. The Owner reserves the right to halt any installation due to poor workmanship. All work shall be defect free, and the installer shall replace, at their expense, any work found to be defective.

3.02 CONTRACTOR RESPONSIBILITIES:

- A. Prior to any cameras, wireless mesh/access point infrastructure and/or cellular modem installation being started, Contractor shall perform proper testing to insure connectivity between the desired various mesh nodes, access points and wireless camera installation locations. This testing and verification procedure will be coordinated and documented with an authorized Representative from the City of Duluth and Project Consultant.
- B. Contractor shall provide, furnish, deliver, transport, erect, install, configure, and connect completely all of the material and equipment described herein or depicted on any RFP package document or drawing, and shall leave all systems in first class operating condition.
- C. Contractor shall be responsible to ensure that all wireless infrastructure installations, as a part of this Video Surveillance System project, will be installed, tested, warranted and serviced only by authorized/certified vendors of the product chosen.
- D. Contractor shall insure that product is installed within industry and manufacturer standards and minimum requirements including, but not limited to the installation of all required lightning suppressors.
- E. Prior to installation, contractor shall provide evidence of system integrity, bandwidth levels and test results to insure communication levels and operation are at or above the minimum standards required for this system to operate correctly.

- F. Contractor shall insure synchronization and coordination of all portions of this installation as necessary including, but not limited to the required camera installation and configuration and any or all work required by electricians on this project.

END OF SECTION

SECTION 28 23 00 – PREMISE IP VIDEO MANAGEMENT SYSTEM GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 SYSTEM DESCRIPTION

- A. The Internet Protocol Video Management System (IPVMS) shall be a fully distributed solution, designed for large multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The IPVMS shall offer centralized management of all devices, servers and users and shall empower a flexible rule-based system driven by schedules and events.
- B. The Contractor shall be a “Certified” partner of the manufacturer solution.
- C. The IPVMS shall allow for an unlimited number of cameras to be connected to each recording server and for an unlimited number of recording servers to be connected to each management server across multiple sites if required. The system shall be licensed for an unlimited number of management and recording servers.
- D. The IPVMS software shall be from the original equipment manufacturer and cannot be delivered under a secondary IPVMS branding, unless noted otherwise within this document.
- E. The IPVMS shall support Microsoft Windows XP PRO, Server 2000, Server 2003, and Server 2008 with the latest patches and service packs installed. The system shall use Direct X and .Net 2.0.
- F. The IPVMS shall incorporate fully integrated Matrix functionality for distributed viewing of any camera in the system from any computer with the IPVMS client application installed.
- G. The IPVMS shall support a large number IP camera and video encoder vendor models. This support shall guarantee flexibility in applications. The IPVMS shall support future camera and encoders models as support becomes available without having to reconfigure the system.
- H. The system shall support full two-way audio between clients and remote devices.
- I. The IPVMS shall be capable of supporting a graphical alarm management application module to allow for the continuous monitoring of the operational status and event-triggered alarms from system servers, cameras and other external devices. The alarm management module shall support graphical

displays with interactive icons to display the status of cameras and other inputs.

- J. The IPVMS shall include future support of a transactional data module designed to integrate with Point of Sale (POS) or Automated Teller Machine (ATM) data and time-link video recordings with POS or ATM transactions. This function is not required with the initial system configuration.
 - K. The IPVMS shall include support for a frame work data module designed to integrate multiple third party video content analysis (VCA) solutions.
 - L. The IPVMS shall include a Software Development Kit (SDK) that shall offer important capabilities for integrating the system with 3rd-party software. The SDK shall enable the user to:
 - 1. Retrieve live and recorded video in several ways:
 - a. In raw data format either encoded or decoded or
 - b. As a window to be resized and shown embedded in another application.
 - 2. Create plug-in components for the Smart Client.
 - 3. Control the operation of Matrix Monitor.
 - 4. Retrieve alarm / event information
 - 5. Integrate data sources for the transactional data module.
 - M. The IPVMS shall include a stand-alone Viewer application to be included with video exported from the Client Viewer application. The Viewer application shall allow recipients of the video to browse and playback the exported video without installing separate software on their computers.
 - N. The IPVMS shall support Active Directory to allow users to be added to the system. Use of Active Directory requires that a server running Active Directory, acting as a domain controller, be available on the network.
 - O. Contractor shall provide all materials, parts and labor for turn-key IP Video Management System with full integration all new components and existing components as detailed on the project drawings and herein.
 - P. Contractor shall provide warranty for a period of one year from substantial completion date. Warranty includes all parts, labor and materials including software version upgrades as released by IPVMS manufacturer. See list of alternates for 2nd and 3rd year warranty options.
- 1.02 GRAPHICAL USER INTERFACE (GUI)
- A. The Contractor shall deploy graphic mapping of the system as described below:

- B. The Server shall display to the user a graphical representation of each facility showing the building footprint. The Site Map shall include graphical camera icons capable of showing the location, angle and viewing area of the camera.
- C. Moving the mouse over the graphical camera icon, without clicking on the icon, shall display a live view camera image in standard thumbnail format. Users shall have the ability to “mouse over” all cameras in succession on the Site Map to see what is happening in the site in real time. By clicking on the camera icon, the user shall view full-sized live and archived images from that camera.
- D. Contractor shall provide and install IPVMS client software on up to twelve (12) client stations. One (1) of these stations will be at the City Hall Front Desk (PC, control keyboard, monitors....) and shall be provided and installed by this contractor. The other eleven (11) stations are existing Owner PCs. Contractor shall provide licenses for twelve (12) concurrent client stations to access live or recorded video through full system Graphic User Interface.
- E. Contractor shall provide and install IPVMS web-client software on up to twelve (12) existing client stations.

1.03 WARRANTY

- A. Contractor shall guarantee all security systems materials and labor for 12-months from date of final acceptance, including management/archive servers. This guarantee shall include and cover all costs associated with troubleshooting, repair, and replacement of defective Work, including costs of labor, transportation, lodging, materials and software. This guarantee shall be included as part of Contractor’s scope, and shall be provided at no additional expense to the Owner.
- B. 12-month warranty period shall include software upgrades and system maintenance.
- C. Contractor shall guarantee that the Manufacturer will provide System Software Maintenance Releases or “patches” on the purchased software version at no charge during warranty and/or service period at no expense to the Owner.
- D. Contractor shall provide the following response time for the duration of the warranty period:
 - 1. emergency – 4 hour response on-site response time
 - 2. normal – 8 hour on-site response time
 - 3. service – 48 hour (2 business days) onsite response time
- E. See list of add Alternates for 2nd and 3d year warranty options.

1.04 CITY HALL CLIENT STATION

- A. Contractor shall provide one client PC workstation fully loaded with full IPVMS GUI and three 19” LCD display monitors. Each display shall be configured to display cameras in a multi-view configuration.
- B. Operator shall have the ability to call up cameras on any display.
- C. The following are the minimum requirements for the new computer (provided and installed in the City Hall Front Desk Area by this contractor) running the Client Viewer application. Contractor shall confirm client PC requirements with IPVMS system manufacturer and provide hardware that meets specifications below or more stringent manufacturer recommended performance requirements.
- D. Monitors: Contractor shall provide and install three (3) 22” LCD monitors connected to new City Hall Client Station.
- E. Contractor shall provide and install new Videotec Model DCZ joystick/keyboard unit
- F. Contractor shall provide UPS unit for client station. UPS shall be capable of supporting station and monitors for a minimum of 20 minutes during power outage.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Approved Manufacturers
 - 1. OnSSI Ocularis / Lenel SkyPoint
 - 2. Milestone XProtect
 - 3. Genetec Onmicast
- B. The IPVMS shall include the following major components:
 - 1. Management/Recording Servers
 - 2. System Manager
 - 3. Client GUI (software)
 - 4. LAN
 - 5. Wireless Mesh / Wireless Access Point Network
 - 6. IP Cameras and/or IP Encoders

- C. The IPVMS shall support the following optional components:
 - 1. Graphical Alarm Management Module
 - 2. Transaction Data Module (future)
 - 3. Integration with intercom systems (future)
 - 4. Video Content Analysis Framework Module – System shall be fully capable of supporting VCA behaviors by simply choosing VA software, behavior and purchasing/installing user license. IPVMS shall be fully capable of supporting VCA from a hardware and IPVMS software standpoint prior to substantial completion.
- D. All equipment and materials used shall be standard components, regularly manufactured, regularly utilized in the manufacturer’s system.
- E. All systems and components shall have been thoroughly tested and proven in actual use.
- F. All systems and components shall be provided with the availability of a toll-free technical support phone number from the manufacturer. The phone number shall allow for immediate technical assistance for either the dealer/installer or the end user at no charge.
- G. All systems and components shall be provided with an explicit manufacturer warranty.

2.02 CITY HALL CLIENT STATION

- A. Contractor shall provide one client PC workstation fully loaded with full IPVMS GUI and three 22” LCD display monitors. Each display shall be configured to display cameras in a multi-view configuration.
- B. Operator shall have the ability to call up cameras on any display.
- C. Contractor shall provide one Videotec Model DCZ Universal Keyboard for managing the VMS application on the client station.
- D. The following are the minimum requirements for the new computer (provided and installed in the City Hall Front Desk Area by this contractor) running the Client Viewer application. Contractor shall confirm client PC requirements with IPVMS system manufacturer and provide hardware that meets specifications below or more stringent manufacturer recommended performance requirements.
 - 1. CPU – Intel Dual i7
 - 2. RAM – Minimum of 4GB
 - 3. Network – Ethernet 10/100/1000 NIC

4. Graphics - NVIDIA Quadro® NVS 420 quad monitor cards
 5. Video: Min 1GB RAM
 6. SATA 3.0Gb/s 7200RPM with 16MB Cache up to 2.0TB
 7. Hard Disk Space – Minimum 50 GB free
 8. Operating System – Microsoft Windows 7, 64-bit
 9. Manufacturers: Dell Precision or approved equal.
- E. Monitors: Contractor shall provide and install three (3) 22” LCD monitors connected to new City Hall Client Station.
1. 22” LCD monitor shall meet or exceed the following specifications:
 - a. 22” diagonal image size
 - b. 1920 x 1080 native resolution
 - c. DVI-I video input
 - d. Dell or approved manufacturer
- F. UPS: Contractor shall provide uninterruptible power supply (UPS) unit for client station. UPS shall be capable of supporting station and monitors for a minimum of 20 minutes during power outage.

PART 3 - EXECUTION

3.01 INSTALLATION PRACTICES

- A. All services provided shall be professional and conform to the highest standards for industry practices. The Owner reserves the right to halt any installation due to poor workmanship. All work shall be defect free, and the installer shall replace, at their expense, any work found to be defective.
- B. Contractor is responsible for providing a complete and functional IPVMS.
- C. Contractor shall provide low voltage power and control lines to and from power supplies, remotely controlled equipment, and other devices, even though not explicitly indicated on drawings or listed in equipment tables.
- D. All manufactured items, materials, and equipment shall be applied, installed, connected, erected, used, and adjusted as recommended by the manufacturers or as indicated in their published literature, unless specifically noted herein to the contrary.
- E. Contractor shall follow these standards and approved submittals for locations of power supplies. It is the intent to limit the number and location of power supplies to facilitate more effective long-term support and maintenance of the system.

- F. Servers shall be delivered to customer sites completely configured with network settings, customers' maps, camera configurations, and, if provided, user accounts.

3.02 TRAINING

- A. Contractor shall provide up to 24 hours (up to six 4-hour sessions) of scheduled and dedicated training time. Each session may include up to six (6) Owner employees. Training sessions shall be dedicated to the following groups:
 - 1. End User - Administration Level
 - 2. End User – Guard Level
 - 3. Web Client User
- B. Contractor shall provide all necessary documentation of the system operating parameters prior to scheduled training sessions.

3.03 AESTHETICS

- A. All cables and equipment terminating at panels frames shall be vertically straight, with no cables crossing each other, from twelve inches inside the ceiling area to the termination block.
- B. All cable bundles shall be combed and bundled to accommodate individual termination block rows and panels.
- C. For any given telecom room, a horizontal and vertical alignment for all mounting hardware will be maintained to provide a symmetrical and uniform appearance to the distribution frame.
- D. All surface-mounted devices shall be firmly secured.
- E. All rack mount equipment shall be securely installed level and plumb.

3.04 HARDWARE LAYOUT

- A. Hardware positioning and layout must be reviewed and approved by the consultant prior to construction. The review does not exempt Contractor from meeting any of the requirements stated in this document.

3.05 SYSTEM TESTING PROCEDURES

- A. Prior to energizing or testing the system, ensure the following:
 - 1. All products are installed in a proper and safe manner, per the manufacturer's instructions.
 - 2. Dust, debris, solder, splatter, etc. is removed.

3. Cable is dressed, routed, and labeled; connections are consistent with regard to polarity.
 4. All products are neat, clean, and unmarred, and parts are securely attached.
- B. Contractor shall ensure that each device in the security systems is functioning normally and in such a manner as to meet the functional and performance requirements in this specification.

3.06 SYSTEM INSPECTION

- A. Contractor shall coordinate with Project Representative for inspection after Contractor has completed testing of entire system.
- B. Contractor shall have trained Contractor representative and testing equipment on site during inspection to assist with spot verification of tests.
- C. Contractor shall verify with Project Representative the precise positioning of camera aim and shall make fine adjustments as requested.

3.07 LABELING

- A. Contractor shall neatly label all security devices and cabling at both ends. All labels shall be on project as-built drawings.
- B. All devices (cabling, cameras, power supplies, wireless nodes, wireless access points, LAN devices, servers...) shall be included on final as-built drawings and provided to City for documentation and maintenance purposes.

3.08 DOCUMENTATION

- A. Upon completion of the installation, Contractor shall provide full documentation sets to the Consultant for approval. All documentation shall become the property of the Owner.
- B. As part of system installation the contractor shall locate each camera, provide ramps site, description of camera location and view, and general note of camera image quality. Contractor shall also note camera locations that provide no video. Camera descriptions shall be entered in to new IP Video system. The contractor shall provide list of camera descriptions to consultant for approval prior to entering into system.

3.09 PRE-CHECK OUT

- A. The Contractor shall demonstrate the following to Owner during system demonstration.
 1. The system installation is complete.
 2. The system is fully operational.

3.10 FINAL ACCEPTANCE

A. The IPVMS system will be accepted when:

1. Training is complete to owner's satisfaction.
2. Punch list items are complete.
3. As-built documentation is complete and submitted to Owner/Consultant. This documentation shall include a letter of completion, O&M manuals, system diagrams, equipment lists and warranty information.
4. The system operates in conformance with manufacturer's published specifications.

B. The system has completed a successful performance period. The performance period will begin on the day following the cutover and must continue for 30 consecutive days during which time the system will operate at an average effectiveness level of 99 percent or more. If for any reason this level cannot be maintained, a new 30-day performance period will be initiated. It is not necessary that one 30-day period expire before another performance period begins.

END OF SECTION

SECTION 28 23 13 – VIDEO MANAGEMENT AND RECORDING SYSTEMS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. A management and recording server system shall control the IPVMS so that the system administrator has full control of all IPVMS components locally or from a remote location.
- B. The following specifications detail the specifications and requirements for a complete flexible video surveillance platform that offers management and storage functionality in a single solution.

1.02 GENERAL MANAGEMENT SERVER AND STORAGE SYSTEM REQUIREMENTS

- A. The hardware platform shall have the ability to run video management applications concurrently with shared storage on a common hardware platform whereby;
- B. Physical storage and/or failover servers shall not be separate devices. System shall be designed and optimized for IP Video Management and Storage applications.
- C. Power and cooling for both server and storage functionality shall be contained within a common platform.
- D. Video management system applications running on each integrated platform shall have access to the combined capacity of the storage in all platforms that are clustered together.
- E. Video management system applications running on each integrated platform shall have access to the combined bandwidth of the storage in all platforms that are clustered together.
- F. The integrated NVR/SAN platform shall support automated video management system application recovery to reduce downtime.
- G. Both storage and server operations shall redundancy for one appliance failure and at a minimum of three (3) drive failures without loss of data/video.
- H. Failover of the server application must be automatic in the case of an appliance failure.
- I. The integrated NVR/SAN platform shall support Windows Server 2003 and/or Windows Server 2008.

PART 2 - PRODUCTS

2.01 MANAGEMENT SERVER

- A. The Management/Archive Server System shall store the system's configuration in a relational database on the management server.
- B. The system shall provide seamless access to recordings on the failover server for all clients through the same client views once the services are fully started.
- C. Contractor shall provide and install management/archive server in the City Hall Data Center. Servers shall be installed in existing 19" enclosed IBM cabinet. Contractor shall coordinate electrical power requirements with City IT personnel for dedicated UPS backed up power to server cabinet.

2.02 STORAGE CONFIGURATION

- A. Storage shall:
 - 1. be addressable by multiple servers or hosts.
 - 2. be IP attached via Gigabit Ethernet using commonly available networking configurations and equipment.
 - 3. be SATA-based.
 - 4. support access for up to 128 Microsoft servers.
 - 5. be UL and CE certified.
 - 6. conform to and be deployable in industry standard 19" rack configurations.
 - 7. support up to 232TB raw storage per 2U (3.5") of vertical rack space.
- B. Availability: Storage system shall
 - 1. support high availability with no single point of failure (drive or appliance) causing loss of data or interrupting access to data.
 - 2. protect data for three simultaneous disk failures with no loss of data or loss of access to data.
 - 3. Storage shall protect against loss of a storage appliance or controller with no loss of data or loss of access to data.
 - 4. Storage shall protect against loss of a networking path between servers and storage, including network interface card, cables and switches, with the ability to dynamically reroute IO activity to an alternate network path.
 - 5. Storage shall support dynamic replacement of hardware components without interrupting access to data.

6. Storage shall support the ability to replace disk drives without the need to interrupt data access (hot-swappable drives).
7. Storage shall support the ability to replace power supplies without the need to interrupt data access (hot-swappable power supplies).
8. Storage shall support the ability to replace fan modules without the need to interrupt data access (hot-swappable fan).
9. Storage shall support the ability to replace entire appliances without the need to interrupt data access (hot-swappable appliance).
10. Storage shall support the ability to replace network switches without the need to interrupt data access.
11. Storage shall support dynamic management features to insure continuous data access.
12. Storage shall be expandable by the addition of disk capacity without the need to interrupt data access.
13. Storage shall be expandable by the addition of processing capacity without the need to interrupt data access.
14. Storage shall be expandable by the addition of network bandwidth without the need to interrupt data access.
15. Storage shall support the ability to dynamically alter data protection options (RAID level) without the need to interrupt data access to the affected data.

C. Flexibility - Storage system shall:

1. provide flexible, selectable data protection options
2. be capable of providing RAID 6 data protection for critical data protection environments
3. be capable of providing RAID 5 data protection for storage-efficient protection
4. be capable of providing RAID 1 data protection for higher IO performance data protection
5. Data protection options shall be selectable and configurable on a volume-by volume basis
6. Storage system shall provide advanced data recovery methods to maximize data availability
7. Storage systems shall include dynamic sparing capability to allow immediate rebuilding of failed drives

D. Scalability:

1. Storage system shall be scalable in capacity, supporting a single volume growth to 144TB
2. Capacity shall be added to the system in modular increments of 12TB
3. Capacity scaling shall be non-disruptive allowing new capacity to be dynamically added to the system without interrupting access to data
4. Physical capacity added to the system shall be configurable into new volumes or added to existing defined volumes without the need to interrupt data access
5. Storage I/O performance shall be scalable
 - a. Support up to 12 controllers; complete Active/Active
 - b. Support up to 48GB controller memory (cache)
 - c. System shall support a minimum throughput of 200 Megabytes per second and 30,000 IOs per second
 - d. System shall allow additional bandwidth and IO processing to be configured scaling to at least 24 Gigabits per second throughput and 360,000 IOs per second
 - e. Addition of I/O performance capability shall be non-disruptive and not require data access to be interrupted
6. Storage system shall support multiple storage hosts without the requirement for additional host software license charges
7. Storage system shall support future capacity expansion with newer technology.

E. Storage System Management:

1. System shall provide an easy-to-use graphical management capability
 - a. System shall self-discover its hardware configuration
 - b. System shall provide capacity and performance usage statistics
2. System shall allow dynamic configuration of volumes
 - a. System shall allow volume attributes including RAID type and volume size to be dynamically alterable without interruption of data access
 - b. System shall have the ability to prioritize data migration versus data access and to have that priority dynamically alterable before and during data migration
3. System shall provide administrator security controls

4. System shall include a scriptable Command Line Interface
 5. System shall include advanced maintenance and manageability features
 - a. System shall log configuration changes and system events
 - b. System shall detect drive failures and graphically (via GUI) and physically (via lights) identify the failing drive
 - c. System shall provide an audible alarm option
 - d. System shall detect controller failures and graphically identify the failing controller
 - e. System shall conduct background disk data verification to insure maximum data availability
 - f. System shall have the ability to prioritize data recovery versus data access and to have that priority dynamically alterable before or during data recovery
 - g. System shall have the ability to prioritize recovery tasks by volume
 6. System shall include SNMP management support
- F. Approved manufacturer:
1. Pivot3 CloudBank with RAID 6e configuration. System shall consist of 3 fully loaded CloudBank appliances (144TBs each) at the City Hall location (Alternate #5 increases from 3 to 4 CloudBank appliances) and one CloudBank Appliance at Lakewood Water Treatment Telecom Room.
 2. Pre-approved Intransa equal.

2.03 ALARM MANAGEMENT MODULE

- A. The alarm management module shall allow for continuous monitoring of the operational status and event-triggered alarms from servers, cameras and other devices. The alarm management module shall provide a real-time overview of alarm status or technical problems while allowing for immediate visual verification and troubleshooting.
- B. The alarm management module shall provide interface and navigational tools through the client, including the following:
 1. Graphical overview of the operational status and alarms from servers, network cameras and external devices including motion detectors and access control systems.
 2. Intuitive navigation using a map-based, hierarchical structure with hyperlinks to other maps, servers and devices or through a tree-view format.

- C. The module shall provide for intuitive alarm management through the use of tools, including the following:
 - 1. Detailed listing of all active or incoming alarms with available filters for time period, alarm source, operator and alarm state.
 - a. Alarm states shall include New, Open, Assigned, In progress, Processed, Resolved, Reject, Wait, On-hold, Ignore, Closed, and Auto Closed.
 - 2. Ability to reassign alarms to other operators based on: change of state for one/multiple or all alarms, change of alarm priority, entering incident-specific log information and the suppression (snooze function) of alarms.
 - 3. Ability to preview, view live, or play back recorded images.
 - 4. Automatically close an alarm based on a corresponding event.
 - 5. Generate audit trail reports by incident.

2.04 TRANSACTIONAL DATA INTEGRATION MODULE

- A. **The system must be capable of future POS system integration, but this integration is not required as part of this project.** The transactional data integration module shall allow the operator to search and view transactional data that is time-linked with video recordings of the transaction activities.
- B. The module shall integrate digital video surveillance images with Point of Sale (POS) or Automated Teller Machine (ATM) transaction data. The module shall allow the operator to efficiently answer questions critical to an investigation, including:
 - 1. Did the employee enter the right amount for the product visible on the counter?
 - 2. Were all the items scanned at the register?
 - 3. Was a returned item handled properly?
 - 4. Was the employee discount given to a non-employee?
 - 5. If use of a stolen credit card was reported what did the customer look like?
- C. The module shall allow the ATM or POS transaction data to be integrated with the system via an open interface supporting a serial server, serial cable or IP connection. The module shall be compatible with any TCP/IP or serial ASCII data source.
- D. The module shall allow views to be created in the client application with the transaction data and associated video to be displayed in separate windows.

2.05 VIDEO CONTENT ANALYTICS (VCA) FRAMEWORK MODULE

- A. **VCA add-on module must be included in the system. The Owner shall select the VCA behaviors after project award based on unit pricing included in successful contractor's proposal response.**
- B. VCA shall be a function of the IPVMS (not edge device) and the Owner shall have the ability to add or move VCA features from camera to camera from the VMS system GUI.
- C. The module shall enable the integration of multiple video content analytics (VCA) systems from different manufactures.
- D. The module shall provide a single, easy-to- manage interface.
- E. The module shall handle video analytics from different types of VCA systems.
 - 1. Server-based
 - 2. Edge-based
 - 3. Library-based
- F. The module shall support a common alert XML format to convert other third party analytics components.
- G. The module shall utilize a central database for all alerts.
- H. The module shall allow the correlation of alerts from multiple analytics to verify these alerts with multiple behaviors in a single user interface.
- I. The module shall be able to view multiple alerts simultaneously.
- J. The module shall utilize a client and allow an operator to create views with pre-defined filters and search criteria.

2.06 MANAGEMENT/RECORDING SERVER SYSTEM

- A. The Recording Servers, once configured, shall run independently of the Management Server and continue to operate in the event that the Management Server is off-line.
- B. The system shall support an unlimited number of recording servers. One or more Recording Servers may be used in a system depending on the number of cameras or physical system configuration.
- C. The system shall support the use of separate networks, VLANs or switches for connecting the cameras to the recording servers to provide physical network separation from the clients and facilitate the use of static IP addresses for the devices.

- D. The system shall support H.264, MPEG-4 and MJPEG compression formats for all analog cameras connected to encoders and all IP cameras connected to the system.
- E. The system shall support dual-streaming (H.264 / MPEG-4 / MJPEG) cameras with each stream connected to a separate recording server. This shall allow each stream to be viewed independently by the Client Viewer.
- F. The system shall record the native frame rate and resolution (NTSC, PAL or Megapixel) supplied by the camera or as configured by the operator from the System Manager.
- G. Each Recording Server shall have a default storage area. A storage area is a directory where the database content, primarily recordings from the connected cameras is stored. Recordings from the connected cameras shall be stored in individual camera databases. The system shall allow an unlimited amount of storage to be allocated for each connected device.
- H. The system shall allow archiving to be enabled on a per camera basis and allow the user to define which archiving drive shall be used for each camera.
- I. The Recording Server shall utilize high performance ISCSI and SCSI disk drives for on-line storage and shall allow the use of lower cost SATA drives for the RAID arrays for on-line archive storage. Use of on-line archiving shall ensure that data is always readily available. Review from either the on-line or the archive storage shall be transparent to the user. Use of tape-backup systems shall not be acceptable.
- J. The on-line archiving capability shall be transparent and allow Client Viewer users to browse archive recordings without the need to restore the archive video to a local hard drive for access.
- K. The frame rate and image quality of live video and browse (playback) video shall be the same to the Client Viewer.
- L. The system shall allow for the frame rate, bit rate and resolution of each camera to be configured independently for recording. The system shall allow the user to configure groups of cameras with the same frame rate, bit rate and resolution for efficient set-up of multiple cameras simultaneously.
- M. The system shall include a Database Configuration Wizard for the efficient configuration of the recording server's database storage areas. The Wizard shall allow the user to define storage areas for the databases of specific cameras or define new storage areas on the recording server or on a connected network drive. To protect against lost recordings in the event a connected network drive becomes unavailable the system shall allow the generation of email notifications to selected individuals with the notification of the unavailability of the selected network drive. All events will be logged.

- N. The system shall support Archiving or the automatic transfer of recordings from a camera's default database to another location on a time-programmable basis without the need for user action or initiation of the archiving process. Archiving shall allow the duration of the camera's recordings to exceed the camera's default database capacity. Archives shall be located on either the recording server computer or on a connected network drive. If the storage area on a network drive becomes unavailable for recording the system shall have the ability to trigger actions such as the automatic sending of email alerts to necessary personnel.
- O. For export purposes, the system shall support 56-bit encryption of video. The 56-bit encryption shall meet the US Government requirements on export limits for encryption.
- P. The system shall include an Archive Configuration Wizard for the efficient creation and management of the Recording Server's archives. The Wizard shall allow configuration of the following criteria for recording archives.
1. Archive Name: Descriptive name for the archive
 2. Path: Path to the directory to be used for archiving. (Directory may be located anywhere on the network).
 3. Default: Define if archive directory shall be the recording server's default archive. (Note: all archiving shall be directed to the recording server's archive directory unless otherwise defined).
 4. Database Retention (hours): Define number of hours for which recordings shall remain in a camera's database before the recordings can be archived.
 5. Archive Retention (days): Select the maximum number of days for which recordings shall be stored in the archive.
 6. Archive Retention (GB): Select the Maximum number of gigabytes of recording data to store in the archive.
 7. Schedule: Schedule when the intervals of the archiving process will start.
- Q. The Recording Server(s) shall have the ability to support multiple Network Interface Cards (NIC) and support connection to the cameras on a network separate from the Client Viewer, Management Server and System Manager
- R. The Recording Server shall have the ability to accept the full frame rate supplied by the cameras while recording a lower frame rate yet still make the higher frame rate available to the clients for live viewing.
- S. The Recording Server shall support static assigned IP addresses or shall obtain IP addresses from a DNS/DHCP server.
- T. The Recording Server shall run as a service and shall typically be installed on dedicated computer(s), separate from the Management Server, on the network.

U. The operational status for the Recording Server shall be displayed in the system tray. Icons in the system tray shall indicate the status:

1. Recording Server is running
2. Recording Server is stopped
3. Recording Server is starting
4. Recording Server is stopping
5. Recording Server is running offline
6. Recording Server must be authorized by administrator

V. The Recording Server shall maintain a continuous log of server status messages accessed from the status Icon in the system tray.

W. Bandwidth Management

1. The Recording Server shall offer the following options for managing the bandwidth utilization for live viewing on the Client Viewer.

a. For JPEG images from the camera / encoder, the output options shall be:

i. Native = Same frame rate / resolution received from camera / encoder

ii. JPEG transcoding:

a) Resolution

(1) Super High = 1 M (MegaPixel)

(2) High = 4CIF (704x576 or VGA (640x480)

(3) Medium = CIF (352x288 or 320x240)

(4) Low = QCIF (176x144)

b) Frame Rate

(1) Unlimited = Same frame rate received from camera / encoder

(2) Medium = 1/4 Native frame rate

(3) Low = 1/20 Native frame rate

2. For MPEG-4 images from the camera / encoder the options shall be:

a. Native = Same MPEG-4 resolution and frame rate received from camera.

b. JPEG transcoding:

i. Resolution

a) Super High = 1 M (MegaPixel)

- b) High = 4CIF (704x576 or VGA (640x480)
 - c) Medium = CIF (352x288 or 320x240)
 - d) Low = QCIF (176x144)
 - ii. Frame Rate
 - a) Unlimited = Same frame rate received from camera / encoder
 - b) Medium = I Frames only
 - c) Low = I Frames only
- 3. For H.264 images from the camera / encoder the options shall be:
 - a. Native = Same H.264 resolution and frame rate received from camera.
 - b. JPEG transcoding:
 - i. Resolution
 - a) Super High = 1 M (MegaPixel)
 - b) High = 4CIF (704x576 or VGA (640x480)
 - c) Medium = CIF (352x288 or 320x240)
 - d) Low = QCIF (176x144)
 - ii. Frame Rate
 - a) Unlimited = Same frame rate received from camera / encoder
 - b) Medium = I Frames only
 - c) Low = I Frames only
- 4. From the Client Viewer, the user shall have the option of having video images continually streamed or only updated on motion to conserve bandwidth between the Client Viewer and the Recording Server.
- 5. The system shall support the MxPEG video compression algorithm, which is unique to Mobotix. MxPEG encoding shall have the capability to maintain high image quality for megapixel cameras while dramatically decreasing bandwidth consumption.

2.07 VIDEO DEVICE DRIVERS

- A. Video device drivers are installable program components used for controlling / communication with the camera / devices connected to a recording server. Video device drivers for supported devices are automatically loaded during the initial installation of the system. Newly released device drivers may be downloaded from the manufacturer's website if the user is connecting a device for which the driver is not already loaded.

2.08 PORT NUMBERS

- A. The system shall use the following default ports for specific purposes.
1. Port 21: Used when recording servers listen for FTP information; some devices use FTP for sending event messages.
 2. Port 25: Used when recording servers listen for SMTP information; some devices use SMTP (email) for sending event messages.
 3. Port 80: While not directly used by the system, port 80 is typically used by the IIS (Internet Information Services) Default Web Site for running the Management Server service.
 4. Port 7563: Used for handling web server requests, for example for handling PTZ camera control commands, and for browse and live request from Client Viewers.
 5. Port 9993: Used for communication between recording servers and the Management Server.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall provide, furnish, deliver, transport, erect, install, configure, and connect completely all of the material and equipment described herein or depicted on any proposal package document or drawing, and shall leave all systems in first class operating condition.
- B. Contractor is responsible for complete maintenance, updates and any required system patches (Microsoft or other) during the warranty period (12-month base, 2nd & 3rd year alternate).

END OF SECTION

SECTION 28 23 16 – VIDEO SURVEILLANCE MONITORING AND SUPERVISORY INTERFACES

PART 1 - GENERAL

1.01 SCOPE

- A. The system shall support a centralized management client to control all recording servers and services. The system shall support remote client interfaces to see live and recorded data with the ability to control PTZ cameras.

PART 2 - PRODUCTS

2.01 SYSTEM MANGER

- A. The System Manager shall provide a feature-rich administration client for system configuration and day-to-day administration of the system.
- B. The System Manager shall be typically installed on the IPVMS administrator's workstation.
- C. The system shall utilize licenses to manage each recording server and camera connected to the system. One license shall be required for each connected recording server and for each connected camera.
- D. The System Manager Graphic User Interface (GUI) shall typically consist of three or four panes. The panes shall be dynamic and change depending on the task.
 - 1. Navigation Pane – Groups the System Manager features into categories:
 - a. Basics – General information and license information. The license information shall include the number of available licenses and used licenses for recording servers and cameras.
 - b. Recording Servers – Management of the Recording Servers connected to the system. The Navigation pane shall display all recording servers connected to the system in the menu tree. Each server shall be uniquely named and identified.
 - c. Devices – Management of cameras, inputs and outputs
 - d. Rules and Alerts – Management of rules, time profiles, notification profiles and alerts
 - e. Security – Management of users, groups and roles
 - f. Server Logs – Access to the various logs in the system

2. Overview Pane – Provides an overview of the selected item. Selecting an item in the Overview Pane shall display the item’s properties in the properties pane.
 3. Properties Pane – Displays properties of the item selected in the Overview Pane.
 - a. The Properties pane shall include tabs for Settings, Info, Record, Archiving and Motion. Each tab shall allow the user to customize the above settings for the selected device.
 4. Preview Pane – Displays preview images from selected cameras or state information from selected inputs and outputs.
 - a. The Preview pane shall display the live video from the camera or group of cameras selected. The image size and file size (kB/frame) for each camera shall be displayed with the image.
- E. Selecting a Recording Server in the Navigation pane shall display the recording server and all its connected devices in the Overview pane. Selecting the Recording Server in the Overview pane shall allow the user to configure the server in the Properties pane. The Properties shall display tabs for Settings, Info, Storage and Archiving to perform the following set-up functions.
1. Settings tab – Only used for selected recording servers.
 2. Info tab – Shall display server name, description, host name, web server URL and time zone (of server).
 3. Storage tab – Shall allow the server storage area/location to be created, changed or removed via an intuitive Database Configuration Wizard.
 4. Archiving tab – Shall allow the user to configure and maintain archives for devices on the recording servers via an intuitive Archive Configuration Wizard.
- F. Selecting Devices in the Navigation pane shall allow the user to configure camera groups, individual cameras, input and outputs.
1. Selecting Cameras in the Navigation pane shall display all camera groups and individual cameras in the Device pane.
 2. Selecting a camera group shall allow management of group Settings, Information, Record and Archiving settings for the selected group.
 3. Selecting an individual camera within a group in the Devices pane shall allow the user to configure individual camera settings in the tabs of the Properties Pane:

- a. The Settings tab for managing the selected camera's settings. The following parameters are listed for example purposes only. Each camera manufacturer will include a different set of parameters that may be adjusted with the Settings tab. The Settings tab shall allow groups of cameras from mixed manufacturers to have their common parameters to be adjusted as a group.
 - i. General
 - a) Brightness
 - b) Compression
 - c) Contrast
 - d) Default Stream
 - e) Date/time
 - f) Resolution
 - g) Rotation
 - h) Saturation
 - ii. H.264
 - a) Bit rate control mode and priority
 - b) Frames per second
 - c) Maximum bit rate
 - d) Target bit rate
- b. The Info tab for managing the selected camera's Name, Description, Hardware name and Unit number.
- c. The Record tab for managing the selected camera's storage and recording settings, maximum storage limits and database configuration. The total hard drive space used to store the camera's recorded data shall be displayed. A Database Wizard shall be provided for the efficient management of recorded video. The Wizard shall allow the user to delete or move the camera database.
- d. The Archiving tab for managing the selected camera's archiving settings.
- e. The Presets tab for managing the selected camera's preset positions for PTZ cameras.
- f. The Patrolling tab for managing the selected camera's patrolling profiles for PTZ cameras.
- g. The Events tab for managing hardware configurable events.

added from Active Directory, although users can also be added using local Windows user management on the Management Server.

2. Selecting Roles in the Navigation window shall display all roles in the Roles Pane. The default role is Administrator and this role has complete and unrestricted access to entire system and all features.
 - a. Roles shall automatically become Client Viewer view groups. A Client Viewer view group consists of multiple camera views. The view group shall only be available to users/groups who have been assigned the role in question.
 - b. The system shall be capable of assigning roles that consist of one or more sub-groups or camera views that are subsets or supersets of assigned roles.
- I. The System Manager shall support different logs related to the Management Server including:
 1. The System Log records system-related information. The system log shall be searchable by Level, Source, and Event Type.
 2. The Audit Log records remote user activity. The audit log shall be searchable by User name, Audit ID, Source, and Location.
 3. The Alert Log records alerts triggered by rules. The alert log shall be searchable by Alert type, Source, and Event type.
 4. The Event Log records event-related information. The event log shall be searchable by Service name, Source, and Event type.
 5. The Rule Log records rules in which the Make new <log entry> action been specified. The rule log shall be searchable by Service name, Source, Event type, and Rule name.
 6. The System Manger shall support the export of tab delimited text (.txt) files to a user defined location. The export feature shall allow the user to define the log, log elements, and time/date range.
- J. The System Manager shall be used to authorize the recording servers connected to the system and define where each recording server will archive data.
- K. The System Manager shall include a Hardware Detection Wizard to detect and set-up IP devices on the network. The Wizard shall provide two modes of operation.

L. Cameras:

1. Camera Management – All cameras shall connect to the Recording Servers. Enabling / disabling cameras shall be preformed on the Recording Server management level through the System Manager.
2. Camera Database Management – Individual camera databases shall be managed through the Database Configuration Wizard from within the System Manager client.
3. Camera Configuration – All cameras shall be configured from the System Manager Properties pane as defined in Section 2.3.

M. Managing inputs – Devices (cameras and encoders) with input ports for the monitoring of a digital sensor's (on/off) state shall be managed from the System Manager by selecting Inputs in the Navigation pane. All inputs from external sensors shall be treated as events by the system. External sensors such as door position switches can be used to trigger events that are used in rules to automatically cause a camera to be recorded.

N. Managing outputs – Devices (cameras and encoders) with output contacts for the control of an external device shall be managed from the System Manager by selecting Outputs in the Navigation pane. Outputs may be activated by rules or manually by a user. Rules may be created that trigger actions when the state of an output changes.

O. Rules

1. The system shall support the use of rules to determine when specific actions occur. Rules shall define what actions shall be carried out under specific conditions. The system shall at a minimum support the following rule initiated actions:
 - a. Start and stop recording
 - b. Set non-default live frame rate
 - c. Set non-default recording rate
 - d. Start and stop PTZ patrolling
 - e. Pause and resume PTZ patrolling
 - f. Move PTZ cameras to specific positions
 - g. Set output to activated/deactivated state
 - h. Send notifications via email
 - i. Generate log entries
 - j. Generate alerts

- k. Apply new device settings, for example a different resolution on a camera
 - l. Start and stop plug-ins
 - m. Start and stop feeds from devices
 - n. Pop-up video on designated Matrix Monitor recipients
2. Rules shall be triggered by events or time or a combination of both.
 3. The system shall include certain default rules including:
 - a. Default Start Feed Rule – Ensures that video feeds from all connected cameras are automatically fed to the system.
 - b. Default Record on Motion Rule – Ensures that as long as motion is detect in images from the cameras, the images will be recorded.

P. Events

1. Events shall be used in the Rules Wizard to determine when an action is triggered. The following events can exist within devices or recording servers.
2. Device Events
 - a. Plug-ins
 - i. Motion started – Occurs when the system detects motion in images received from a camera.
 - ii. Motion stopped – Occurs when the system no longer detects motion in images received from a camera.
 - b. Hardware Configurable
 - i. Input activated – Occurs when an external input unit connected to an input port on a device is activated.
 - ii. Input changed – Occurs when the state of an external input unit connected to an input port on a device is changed, regardless of which state the external input unit is changed to.
 - iii. Input deactivated – Occurs when an external input unit connected to an input port on a device is deactivated.
 - iv. Motion started – Occurs when a camera detects motion in its images.
 - v. Motion stopped – Occurs when a camera no longer detects motion in its images.

3. User-defined Events – Events custom-made for the individual system shall be available. Such user-defined events are used for making it possible for end users to manually trigger events while viewing live video in the Client Viewer or for third-party systems to trigger events. The system shall support an option to select / deselect defined user-defined events in roles where the property “External” is enabled.

Q. Alerts

1. Alerts are short messages created by the user. For example, Panic button activated, Emergency exit door opened, etc. Rules shall be used to trigger alerts. For example, when there is motion on the “Staff Entrance camera” start recording on that camera and generate alert “Employee Clocking In”. Alerts triggered in this fashion shall be visible in two places:
 - a. In the System Manager Alert log
 - b. In the Client Viewer, where users (rights permitting) shall be able to view a list of triggered alerts while browsing recordings. Alerts listed in the Client Viewer are clickable, allowing the users to quickly jump to the time at which an alert was triggered.

R. Users, Groups and Roles

1. The system shall support adding Users from Active Directory or Users can also be added using local Windows user management on the Management Server. Users can belong to more than one group and groups can contain any number of users.
2. The system shall support the creation of Roles to determine which of the system features users and groups are able to use. Roles determine rights. There shall be no limit to the number of roles which may be defined. Users and groups are assigned to Roles to determine their user rights within the system. Rights shall be specified by the following categories:
 - a. Device Security Rights specify which features users/groups with the selected role shall be able to use for each device (e.g. a camera) or device group. Device right options shall include the following:
 - i. Camera (# or group) or not visible to the user
 - ii. User or group can view live video
 - iii. User or group rights for recorded video:
 - a) Browse video
 - b) Export video as AVI / JPEG
 - c) Get sequences
 - d) Smart Search

- e) Export video in database format
 - iv. Input visible or not visible to the user
 - v. User or group rights for outputs
 - a) Visible?
 - b) Activate output?
 - 3. The system shall support the export and saving of tab delimited text (.txt) files to a user defined location. The export feature shall allow the user to define the log, log elements, and time/date range.
 - 4. The Log files shall be searchable to allow the user to quickly locate and identify events and users.
 - a. The system log shall be searchable by Level, Source and Event Type.
 - b. The audit log shall be searchable by User name, Audit ID, Source and Location.
 - c. The alert log shall be searchable by Alert type, Source and Event type.
 - d. The event log shall be searchable by Service name, Source and Event type.
 - e. The rule log shall be searchable by Service name, Source, Event type and Rule name.
 - 5. All logs shall by default be enabled. The system shall allow the user to disable selected logs.
 - 6. All logs shall by default be maintained for 365 days after which log entries will be deleted. Log entries shall also be deleted if the maximum number (of log entries) is exceeded prior to the specified retention period. The system shall allow the user to define how many days the log information shall be retained.
 - 7. Log entries by default shall be limited to one million after which log entries will be deleted. Log entries shall also be deleted if the retention period is reached prior to the specified number (of log entries) is reached. The system shall allow the user to define how many log entries shall be retained up to the limit.
- S. View Groups
- 1. A view group shall be the way in which video from one or more cameras are presented in the Client Viewer. A view group is a container for one or more logical groups of such views.

2. By default, each role defined in the System Manager shall also be created as a view group. When a role is added in System Manager it will appear as a view group for use in the Client Viewer.
3. A view group based on a role shall by default only be available to users/groups who have been assigned to the role.
4. A view group based on a role shall by default carry the role's name. For example; if a role is created named Building A Security Staff, it will by default appear in the Client Viewer as a view group called Building A Security Staff. The system shall allow the user to change the name of the view group.

T. Matrix Functionality

1. The system shall include an integrated Matrix solution for distributing video to any computer with the Client Viewer or Matrix Monitor application installed. A computer on which the matrix-triggered images can be shown is known as a Matrix recipient.
2. The Matrix shall cause video to automatically pop-up on a computer with the Matrix Monitor application installed based on activation of an event. The video pop-up shall occur even if the computer is running another Microsoft application.
3. The system shall allow a Matrix recipient to be included in a rule that triggers the video transmission (based upon an event) to the designated matrix recipient or another user can send the images to the recipient.

U. Customizing Layout

1. The system shall allow the user to customize the layout of the System Manager's GUI. All panes can be rearranged and different layout features can be combined. The following options shall be available:
 - a. Resizing panes
 - b. Moving panes
 - c. Using auto-hide
 - d. Resetting to the default layout
 - e. Toggling preview pane on and off

2.02 CLIENT VIEWER

- A. The Client Viewer shall provide remote users with a comprehensive suite of features, including:
 1. Viewing live video from cameras on the surveillance system.

2. Browsing recordings from cameras on the surveillance system, with a selection of advanced navigation tools, including an intuitive timeline browser.
3. Creating and switching between an unlimited number of views, each able to display video from up to 64 cameras from multiple servers at a time. The system shall allow views to be created which are only accessible to the user or to groups of users.
4. Accessing views of cameras on any camera with a Client Viewer application installed.
5. Creating special views for widescreen monitors.
6. Using multiple screens as well as floating windows for displaying different view simultaneously.
7. Quickly substituting one or more of a view's cameras with other cameras.
8. Viewing image from several cameras in sequence in a single camera position in a view or a so called carousel.
9. Viewing video from selected cameras in greater magnification and/or higher quality in a designated hotspot.
10. Receiving and sending video through the Matrix application
11. Include HTML pages and static images (e. g. maps or photos) in views.
12. Controlling PTZ cameras.
13. Using digital zoom on live as well as recorded video.
14. Activating manually triggered events.
15. Activating external outputs (e. g. lights and sirens)
16. Using sound notifications for attracting attention to detected motion or events.
17. Getting quick overview of sequences with detected motion.
18. Getting quick overviews of detected alerts or events.
19. Quickly searching selected areas of video recording for motion (also know as Smart Search).
20. Skipping gaps during playback of recordings.
21. Configuring and using several different joysticks.
22. Printing images, with optional comments.
23. Copying images for subsequent pasting into word processors, email, etc.

24. Exporting recording (e.g. for use as evidence) in AVI or JPEG database formats.
 25. Using pre-configured as well as customizable keyboard shortcuts to speed up common actions.
 26. Selecting between a number of language versions, independent of language used on main surveillance system.
 27. Communicating with remote audio devices, including microphones and speakers via a local microphone and speaker.
- B. The Client Viewer shall allow remote users to connect to the Management Server for initial authorization then to the Recording Servers for access to video recordings.
 - C. The Client Viewer shall have the ability to adjust the display parameters for the video images, i.e. down speed the frames per second or down sample the resolution from the recording server to optimize bandwidth utilization.
 - D. The Client Viewer shall have the capability to serve as a host to 3rd-party applications through the use of a plug-in component.
 - E. The Client Viewer shall typically be installed on remote user's computers.
 - F. The Client Viewer shall provide a Graphical User Interface (GUI) and feature Live, Browse and Setup tabs for the convenient access of live and recorded video as well as camera properties and display quality.
 - G. The Client Viewer shall support the following languages; English, Spanish, Japanese, Italian, French, German and Danish. Each user shall have the option of using a different language. The Client Viewer shall be delivered in addition to English with fully localized installation, graphical user interface (GUI) and help system in Arabic, Danish, Dutch, French, German, Italian, Japanese, Polish, Russian and Spanish.
 - H. The Client Viewer shall support the use of standard PTZ controller or 3-axis USB joysticks for control of pan, tilt, zoom and auxiliary camera functions.
 - I. The Client Viewer shall support the use of multimedia control devices, which are capable of emulating keystrokes, for the efficient review of recorded video.
 - J. The Client Viewer shall support the use of keyboard shortcuts for control of standard features.
 - K. The Client Viewer shall have the following two-way audio functions:
 1. The Client Viewer shall allow an operator to play live audio from a camera's microphone and play back recorded audio.

2. The Client Viewer shall allow an operator to export audio together with video in the native database format.
 3. The operator shall have a “press to talk” option which shall send the microphone input from the operator out to one IP device enabled speaker, or to all of them.
 4. Each camera view item shall use the default assigned microphone and speaker, but the operator shall have the ability to select other audio devices or to let the same speaker follow the operator when choosing other views.
- L. The IPVMS shall have the capability to receive multicast streams if a preset number of clients are requesting the same live view camera. The Operator shall have the option to configure the system to always receive unicast streams at the discretion of the system administrator. The system shall have the capability to detect if the network becomes unreliable and to automatically switch to unicast to ensure that the operator is able to receive video.
- M. The operator shall have the ability to use digital zoom where the zooming is performed in the image only on any number of cameras simultaneously. This functionality shall be the default for fixed cameras. The use of digital zoom shall not affect recording or other users.
- N. The Client Viewer shall be equipped with a context-sensitive help system that covers the full Smart Client functionality for operators to instantly get help on a certain topic.
- O. The Live tab shall allow the user to trigger manual events, control outputs, select audio inputs, and control PTZ cameras.
1. The Client Viewer shall support the following multiple viewing options:
 - a. Floating Window – Allows the currently selected view to be duplicated as a new floating view which may be moved to other connected monitors by dragging the image.
 - b. Send window to primary, secondary or additional monitors.
 - c. Create views of up to 64 cameras per monitor.
 - d. Carousel – The Carousel feature shall allow the sequencing display of cameras in a view window. Multiple carousels may be defined to allow all view windows to display sequences of cameras. The operator shall have the ability to select the default display time or to enter a custom display time for each camera in the carousel. From inside the camera view the operator shall have the option to manually switch to the next or previous camera in the carousel camera list as well as pausing at the current camera. When switching from one camera to

the next the transition phase shall be completely smooth without any delay.

- e. Hot Spot – The Hot Spot feature shall allow one position of a view to be designated as a hot spot and allow the camera displayed in the hot spot window to be viewed in a higher image quality setting or higher frame rate than that of the other windows in the view. This feature shall minimize bandwidth utilization by only pulling selected higher quality / higher frame rate images from the recording server. An orange border around the image shall identify the hot spot window in the view.
 - f. Static Image – The Static Image feature shall allow one position of a view to be used for displaying maps or other images of interest to the user.
 - g. Matrix Window – A window that is used to display cameras on demand or by an external event.
 - h. Dynamic Actions – The operator shall be able to assign outputs, PTZ presets, events and views as actions to joystick buttons and as keyboard shortcuts. The actions shall be ordered in categories to optimize overview.
 - i. HTML Page – The HTML Page feature shall allow for several navigation functions within the Client Viewer including.
 - i. Switching between views by clicking on a text description of the view in the HTML Page. For example; “Go to Shared Group 1 View 1”
 - ii. Switching between different views by clicking on an interactive map area. For example; a site or building floor plan with interactive colored zones inserted as a HTML page would allow the user to switch views to a camera displaying images of the specific part of the site or building.
 - iii. Allowing maps to be created from standard image files (JPEG, GIF, TIF, etc.) and have interactive icons over-laid to activate additional maps and / or views.
 - iv. Allowing HTML scripting for use in creating buttons for view navigation.
 - v. Allow web pages to be open in Client Viewer views.
2. The Client Viewer shall feature an Event window to allow the user to select events and manually trigger the selected event to occur. The event window shall list all events grouped by server and camera/device that the event is associated with.

3. The Client Viewer shall feature an Output Control window to allow the user to manually activate an external output port on a device. The output window shall list all selectable outputs grouped by server and camera/device that the output is attached to.
4. The Client Viewer shall allow the user to control any PTZ camera within the displayed view. Depending on camera capabilities / camera model the typical method for controlling the PTZ functions is as follows; when the mouse cursor is placed on the video image the cursor pointer shall automatically change to a crosshair indicating the camera has PTZ capabilities. Re-centering the camera's field-of-view shall be accomplished by left clicking the crosshair on the area of interest within the image. Controlling the zoom function shall be accomplished by holding down the left mouse button and selecting a percent zoom from a scale of 0% to 100% or by use of the mouse wheel.
 - a. Additional control feature for Sony PTZ cameras includes ability to draw a rectangle around the area of interest to zoom the camera in for closer examination. The size of the rectangle shall be proportionate to the level of zoom, i.e., the smaller the rectangle the greater the zoom level achieved.
5. The Client Viewer shall feature a PTZ control window on the GUI that provides 8 directional and home positions.
 - a. The PTZ control window shall provide a digital zoom feature for the user to digitally zoom in on the displayed image without affecting the recording or the display of the camera on other Client Viewer applications.
 - b. An overview image in the view shall display the normal field-of-view and the digital zoom area in a highlighted box to provide the user with spatial awareness.
 - c. The PTZ control window shall allow the user to select pre-defined presets for PTZ cameras and drive the selected camera to the preset.
 - d. The Browse tab shall allow the user to select the views for playback of recorded video. Views are defined in the Setup tab.
6. The current camera state shall be displayed on the title bar of the live view item window. A camera shall indicate that it is in live mode by a green "Live", in recording mode by a red "REC" and in stopped mode by a yellow "Stopped".
7. The system shall allow for live or playback video to switch to full quality when maximized unless "Keep when maximized" is selected.

- P. The Browse tab shall display motion activated sequences for the selected camera in a drop down menu. A line with the date, start time and duration shall represent each sequence. A drop down preview screen shall allow the user to view the recorded sequence.
1. The Browse tab shall display Alerts defined as bookmarked events in the System Manager.
 2. The Browse tab Time Navigation window shall display a time line for each camera to represent recorded video sequences. The sequences shall be color coded to indicate motion activated sequences. A red band shall indicate the video was recorded due to motion activation. A green band shall indicate video recorded without motion or pre and post alarm video. The time line band shall be highlighted based on the camera view selected in the display. The window shall allow video sequences for the displayed cameras to be review simultaneously.
 - a. The window shall provide controls for:
 - i. First / last image
 - ii. Next / previous sequence
 - iii. Next / previous image for selected camera
 - iv. Playback forward / reverse
 - v. Playback speed
 - vi. Skip gaps during playback
 - vii. Search by time / date
 3. The Browse tab Smart Search window shall allow an area of interest in an image to be searched for motion by time. Search parameters shall include sensitivity and interval. A grid feature shall allow only specific regions of interest to be searched.
 4. The Browse tab Print window shall allow a surveillance report to be printed from the image with specific information including the camera name, capture time, print time, user and user notes. The surveillance report shall be printed to any network connected printer.
 5. The Browse tab Export window shall allow the start and stop time and camera source for the export to be set and provide two format options for exporting video clips. The exported clip shall be the native MJPEG or MPEG4 format from the camera.
 - a. AVI/JPEG format – Provides options for export format type (AVI/JPEG), timestamp, frame rate (full/half), digital zoom export, and AVI CODEC. Video clip may be exported to desktop or a specific

file path. All audio associated with the video being exported shall automatically be included in the AVI export.

- b. Database Export – Provides options for including audio, security options including compressing and/or encrypting exported database and destination options including desktop or a specific file path. Includes option for a viewer to be attached to the exported file.
6. The Browse tab PTZ control window shall allow the digital zoom feature to be used in recordings.
- Q. The Setup tab in the View window shall allow the creation of camera groups and views to be utilized by the Live and Browse tabs. Camera groups and views shall be named according to user requirements. Any combination of the connected cameras shall be displayed in one of the following views.
- 1. 1 x 1
 - 2. 1 + 3 wide
 - 3. 2 x 2
 - 4. 1 + 5
 - 5. 2 + 4 wide
 - 6. 1 + 7
 - 7. 1 + 8 wide
 - 8. 3 x 3
 - 9. 2 + 8
 - 10. 4 x 3 wide
 - 11. 4 x 4
 - 12. 5 x 5
 - 13. 6 x 6
 - 14. 7 x 7
 - 15. 8 x 8
- R. Shortcut – The system shall allow the user to program numerical keyboard shortcuts for camera views. The shortcut number shall be displayed with the view description in the Live and Browse displays. The shortcut shall allow the user to change views with 2 to 3 keyboard entries.

- S. The Setup tab System Overview window shall allow view layouts to be set-up with cameras, carousel, hotspot, HTML pages, static images and the matrix monitor feature.
- T. The Properties window shall allow the user to configure the following settings:
 - 1. Image Quality – Options shall include Full, Super High (for Megapixel cameras), High, Medium and Low.
 - 2. Frame Rate – Options shall include Unlimited, Medium and Low
 - 3. Maintain Image Aspect Ratio – Will allow original image aspect ratio to be maintained in the display or allow the image to be scaled to the display.
 - 4. Update Image on Motion – Will allow bandwidth from the Recording Server to be conserved by only updating the image display on motion.

2.03 WEB-BASED REMOTE CLIENT

- A. The web-based remote client shall offer live view of up to 16 cameras, including PTZ control with joystick and event / output activation. The Playback function shall give the user concurrent playback of up to 9 recorded videos with date, alert sequence or time searching.
- B. The web-based remote client shall have the ability to adjust the display parameters of the video images, i.e. down speed the frames per second or down sample the resolution from the recording server to optimize bandwidth utilization.
- C. View Support – The Remote Client shall support shared and private server-based views with a layout of up to 4x4. Any of these views shall have the ability to contain a combination of cameras, images, and HTML page view items.
- D. Microsoft Active Directory Support – The Remote Client shall support logon using the NTLM challenge handshake with Microsoft Domain Controllers and the local Windows user account database on the Management Server.

2.04 MATRIX MONITOR

- A. Matrix Monitor – The Matrix Monitor feature shall allow distributed viewing of any camera on the system on any monitor. The system shall offer the option of configuring the Matrix Monitor windows as follows.
 - 1. 1x1 View – Displays image feeds from a single camera.
 - 2. 2x2 View – Displays image feeds from up to four cameras. The system shall include options for how the 2x2 view is populated.

3. 3x3 View – Displays image feeds from up to four cameras. The system shall include options for how the 3x3 view is populated.
 4. 4x4 View – Displays image feeds from up to four cameras. The system shall include options for how the 4x4 view is populated.
 5. The image feeds shall be inserted in top-left to bottom-right order, according to a first-in-first-out principle. Image feeds shall remain in the position in which they were first loaded; when all positions are used, any new image feeds shall replace the oldest image feeds.
- B. The newest image feed shall always be inserted in the top-left position and any previously received image shall be shifted to the right and down and eventually be “pushed-out”.
 - C. The Matrix Monitor feature shall access the MJPEG stream from the connected camera directly and not sourced through the recording server.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall provide, furnish, deliver, transport, erect, install, configure, and connect completely all of the material and equipment described herein or depicted on any proposal package document or drawing, and shall leave all systems in first class operating condition.
- B. Contractor is responsible for complete maintenance, updates and any required system patches (Microsoft or other) during the warranty period (12-month base, 2nd & 3rd year alternate).

END OF SECTION

SECTION 28 23 27 – IP VIDEO SURVEILLANCE CAMERAS

PART 1 – GENERAL

1.01 SCOPE

- A. The following security system specifications include products and execution requirements relating to furnishing and installing security cameras, housing and support hardware as specified and indicated on project drawings and as required for a complete and functional IPVMS.
- B. Contractor shall provide low voltage power and control lines to and from power supplies, remotely controlled equipment, and other devices, even though not explicitly indicated on drawings or listed in equipment tables.
- C. Contractor shall coordinate with the City for provision of high voltage power, where necessary.
- D. All cameras and related security devices shall be provided and installed as shown on project drawings by Contractor.
- E. The Contractor shall be responsible for any and all related programming and end-user training.
- F. Proposer shall visit all camera sites and determine appropriate

1.02 WARRANTY AND MAINTENANCE

- A. The complete system (including cameras) shall be warranted against defects and workmanship for a minimum of (12) months, covering all parts and labor, after acceptance by owner. Additional years are included as an add alternate in this RFP.
- B. The contractor shall perform manufacturer's recommended preventative maintenance on all applicable components and/or devices.
- C. The contractor shall be the primary contact and respondent for all service and support and officially recognized and backed by the camera manufacturers.
- D. Contractor shall include service and maintenance of cameras for a 12 month period, including cleaning interior and exterior of camera housings every 6-months.

PART 2 – PRODUCTS

2.01 IP CAMERAS

- A. Fixed Exterior Camera with On-board SD storage shall be an Axis 3344-VE or approved equal. Cameras #1 & #2.

1. Fixed Exterior Camera with On-board SD storage shall be:
 - a. Vandal-resistant
 - b. Weather proof
 - c. 1 Megapixel or greater
 - d. Motion JPEG, MPEG-4 and H.264 Compatible
 - e. 30 FPS capable in all resolutions
 - f. have Local Storage with a SD/SDHC memory card slot with 16GB card.
 - g. Have a temperature operating range of -40° F to 131° F
 - h. One (1) Highway 39 camera (covering waterway) shall be accompanied with Axis IR Illuminator (Axis # T90A42).
- B. Standard Fixed Exterior Camera shall be a Sony SNC-CS50N or approved equal. Cameras #9 & #10
 1. Fixed Exterior Camera shall be:
 - a. Motion JPEG, MPEG-4 and H.264 Compatible
 - b. Have a frame rate of at least 30 fps with JPEG/MPEG-4
 - c. Have a frame rate of at least 10 fps with H.264
 - d. Have a temperature operating range of -40° F - to 122° F
- C. Exterior PTZ camera shall be a Sony SNC-RS46N or approved equal. Cameras #3, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, and 26.
 1. Exterior PTZ camera shall be:
 - a. 4CIF resolution or better
 - b. Motion JPEG, MPEG-4 and H.264 Compatible
 - c. 36x times zoom optical or better
 - d. Have a temperature operating range of -40° F - to 122° F
 - e. Boardwalk cameras (#17 & #18) and Lakewood Cameras (#19 & #20) shall have built-in wireless card (Model #SNC-CFWS).

- D. 8-Megapixel 180-degree camera shall be an Arecont AV8185 or approved equal. Camera #7.
 - 1. 8 Megapixel 180-degree camera shall be:
 - a. Utilize four (4) high sensitivity 2 Megapixel CMOS sensors each with 1/2" optical format
 - b. H.264 compliant
 - c. Have dual standard compression support with simultaneous streaming of both H.264 and MJPEG formats
 - d. Have multi-streaming support of up to (8) non-identical concurrent streams
 - e. Output a maximum resolution of 1600(H) x 1200(V) pixels per sensor for a total resolution of 6400(H) x 1200(V) across all four sensors.
 - f. Have an overall imaging that provides a 180 degree field of view
 - g. Have a maximum frame rate of 88 frames per second across all four sensors at the maximum resolution of 800(H) x 600(V) per sensor
- E. Portable Video Surveillance Kit Camera shall be Industrial Video & Control PTZ-3130-06 or approved equal. Camera #27.
- F. Thermal Imaging Camera shall be Flir PT-304 with heater/blower. Camera 28.

2.02 ENVIRONMENTALLY SEALED CAMERA HOUSINGS

- A. The pressurized outdoor dome camera housing for the Standard Fixed Exterior cameras shall be a Videolarm PFDW75CF2N, or approved equal. Cameras #9 & #10.
- B. The pressurized outdoor dome camera housing for Exterior PTZ cameras shall be the Sony UNI-OPL7C2 or approved equal.
 - 1. Camera #3, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26.
 - a. Boardwalk cameras (#17 & #18) and Lakewood Cameras (#19 & #20) shall have Sony UNI-ORL7C2 housing due to wireless option.
- C. The outdoor camera housing for the 8 Megapixel 180-degree IP camera shall be an Arecont Dome 6-O-W or approved equal. Camera #7.
- D. All housings shall come standard with a pendant mount. All housings shall be manufactured from a high-impact engineered plastic, UV protected, with a UL flame rating of 94V0.
- E. Domes shall be made of an injection molded, optically clear, polycarbonate blend material, and shall be held in place with (9) captive fasteners, used to

press the dome against the sealing O-ring. A secondary O-ring seal shall be provided at the top of the enclosure through a precision machined bracket. This machined bracket shall also be provided with a 5 to 7 psi pressure-relief valve and a standard bore thread dill valve to insert inert dry nitrogen into the enclosure. All incoming wires will enter the unit via a 10-pin hermetically sealed connector. Access to the enclosure shall be from below with (9) captive fasteners used to press the dome against a sealing O-ring. A twist-off feature shall allow for the final removal of the dome. The wiring enters through the top of the housing on all models. The engineered plastic top, with its reflective white paint, insulates internal equipment.

- F. All housings shall be equipped with blowers and thermostatically controlled heaters. The heater shall turn on at 60°F (15°C) and turn off at 80°F (25°C). The housing shall support a temperature range of -40°F (-40°C) to 122°F (50°C).

2.03 POWER SUPPLY

- A. The Contractor shall provide and install power supply for the exterior cameras and heaters. Coordinate electrical installation with the City.
- B. The enclosure shall be installed by this contractor inside pole mounted communication box (where applicable)
- C. Power Supply shall feature:
 - 1. 110 Volts AC input
 - 2. LED indication of AC power.
 - 3. NEMA-4 rated weatherproof housing
- D. Contractor shall provide and install a power supply approved by the manufacturer of the device it is powering.

2.04 POLE MOUNTED ENCLOSURE

- A. Pole mounted enclosure (enclosure) shall be NEMA 3R rated enclosure as a minimum.
- B. The maximum enclosure size shall be 18" H x 18" W x 18"D.
- C. The enclosure shall accommodate wireless node, access point, antennae and power supply.
- D. The enclosure shall accommodate IP camera mounting to the front panel of the enclosure.
- E. The enclosure shall be water-resistant under normal and severe rain conditions.

- F. The enclosure shall have proper ventilation and airflow in accordance with the specifications of the electronics selected.
- G. The enclosure shall feature a backboard on the back for equipment mounting.
- H. This specification provides minimum requirements for the enclosure. Final selection of the enclosure is the responsibility of the Contractor. Contractor shall be responsible to verify that all the components that will be housed by this enclosure properly fit inside. The contractor is responsible to provide and engineer proper mounting of the enclosure to the poles.
- I. The contractor shall include drawings and complete manufacturer specification of the proposed enclosure during the product submittal process.
- J. The enclosure shall feature the picture of City of Duluth Police Department Badge and the note "Duluth Police". The size of the note's letters and picture of the badge shall be coordinated with the City.
- K. The contractor shall use Hoffman enclosure part #416WU or approved equal.

2.05 VIDEO SERVER/ENCODER

- A. The video server shall be based on a solid-state microprocessor, operating on an open source, non-Windows based platform, and including a built-in web server. It shall be available as in a blade version for 19" rack systems.
- B. It shall be capable of delivering up to 30 frames per second in all resolution modes.
- C. The video server shall also support H.264 video compression.
- D. Video shall be available in a minimum of five different resolutions, each supporting a minimum of 11 different compression levels. Supported video resolutions shall include:
 - 1. QCIF
 - 2. CIF
 - 3. 2CIF
 - 4. 2CIF Expanded
 - 5. 4CIF
- E. The video server shall support both IP address filtering and HTTPS to secure transmission of video and configuration data. The video server shall not require any additional software to operate, except for the tools available in a Microsoft W2K/XP/7 operating environment. It shall be possible to manage and monitor the unit using SNMP.

- F. The video server shall provide support for a variety of third party PTZ and dome camera systems. Available functionality shall include manual PTZ-control and at least 20 definable presents. The units shall also be equipped with PTZ control queue functionality and shall contain built-in support for running so called Guard Tour, which will automatically move the camera between pre-selected presets until interrupted by an authorized operator.
- G. The video server shall connect to a network using 100baseTX Fast Ethernet, via a standard RJ-45 port.
- H. The video server shall be capable of providing video at bit rates of up to 12Mbit/sec per video stream.
- I. The video server shall contain a built-in web server to make video and configuration available in a standard browser environment, with no need for additional software.
- J. The video server shall support both fixed IP addresses and dynamically assigned IP addresses (provided by a DHCP server). It shall also allow automatic detection of the video server based on UPnP™, when using a PC with an operating system that supports this feature.
- K. The video server shall provide the ability to control network traffic by limiting the maximum bandwidth to a selected value. Furthermore, it shall be possible to limit the frame rate per viewer to a selected value, as well as the duration of each viewing session.
- L. The video server shall provide the ability to send operational and technical information using a standard SMTP mail server, and shall include support for SMTP authentication.
- M. The video server shall provide local time & date, including support for daylight saving time. To ensure accuracy, the video server must accept external time synchronization from an NTP (Network Time Protocol) server.
- N. The video server shall be able to connect to and control third party domes and Pan Tilt Zoom devices via RS-232 or RS-485. The drivers for these devices shall be possible to upload to the video server. The uploading of drivers, and the changing of the driver type shall be possible without having to replace the video server's firmware. Available functionality shall include manual PTZ-control and at least 20 definable presents. The units shall also be equipped with PTZ control queue functionality and shall contain built-in support for running so called Guard Tour, which will automatically move the camera between pre-selected presets until interrupted by authorized operator.
- O. Customer-specific settings, including the IP address, the local time & date, event functionality and video configuration, shall be stored in a non-volatile memory and shall not be lost during power cuts or soft resets.

P. Video server shall be AXIS Q7404 or approved equal.

PART 3 – EXECUTION

3.01 INSTALLATION PRACTICES

- A. All services provided shall be professional and conform to the highest standards for industry practices. The Owner reserves the right to halt any installation due to poor workmanship. All work shall be defect free, and the installer shall replace, at their expense, any work found to be defective.
- B. Contractor is responsible for providing a complete and functional CCTV system.
- C. Contractor shall provide low voltage power and control lines to and from cameras, power supplies, wireless equipment, LAN equipment, and other devices, even though not explicitly indicated on drawings or listed in equipment tables.
- D. All manufactured items, materials, and equipment shall be applied, installed, connected, erected, used, and adjusted as recommended by the manufacturers or as indicated in their published literature, unless specifically noted herein to the contrary.
- E. Contractor shall follow these standards and approved submittals for locations of power supplies. It is the intent to limit the number and location of power supplies to facilitate more effective long-term support and maintenance of the system.
- F. Cameras shall be delivered to customer sites completely configured with network, image, archiving, motion detection, and other required system settings and, if provided, administrative user IDs and passwords. If client didn't provide cameras user IDs and passwords, cameras have to be protected by specific administrative user IDs and passwords selected by the vendor.
- G. Contractor shall have trained Contractor representative and testing equipment on site during inspection to assist with spot verification of tests.
- H. Contactor shall verify with Project Representative the precise positioning of camera aim and shall make fine adjustments as requested.

END OF SECTION

APPENDIX A - UNIT PRICE FORM

CITY OF DULUTH - IPVMS MAJOR COMPONENT Unit Pricing				
Note - This is not meant to be a complete bill of materials. Its purpose is to identify major system components at each location and identify unit pricing for each major system component. The CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL MATERIALS AND MISC MOUNTING HARDWARE, CONDUIT, CABLING, etc., WHETHER OR NOT THEY ARE LISTED IN THIS SPREADSHEET.				
Line #	Cam. #	Wireless Device #	Type of Device	Cost
1			City Hall Building	
2		N- 01	Firetide 7000 Mesh Node	
3			Antennas (2) - Contractor to confirm type during wireless testing	
4			24 Port Network Switch	
5			Three (3) Fully Loaded Pivot3 CloudBank Appliances	
6			Client Viewing Station (at front desk)	
7			Cat6 cabling from front desk Monitoring Station to LAN (300' CMP)	
8			Bay Front Pavillion Area	
9		N -09	Mesh Node - Exterior	
10			Antennas	
11	6		Ext PTZ Camera - Column/Corner Mt	
12			- corner mount bracket	
13	8		Ext PTZ Camera - Column/Corner Mt	
14			- corner mount bracket	
15	7		Ext 180 deg. 8 MegaPixel Cam.	
16			- Outdoor wall mount pendant dome	
17			- Corner mount adapter	
18			Cabling/exterior conduit	
19			Aerial Lift Bridge	
20		N-03	Mesh Node - Exterior - NORTH end of Bridge	
21			Antennas	
22		N-04	Mesh Node - Exterior - SOUTH end of bridge	
23			Antennas	
24	11		Ext PTZ Camera - Mt on NE corner	
25			- mounting bracket	
26	12		Ext PTZ Camera - Mt on SE corner	
27			- mounting bracket	
28	13		Ext PTZ Camera - Mt on NW corner	
29			- mounting bracket	
30	14		Ext PTZ Camera - Mt on SW corner	
31			- mounting bracket	
32	9		Ext Fixed Camera - NORTH traffic view	
33			- mounting bracket	
34	10		Ext Fixed Camera - SOUTH traffic view	
35			- mounting bracket	
36			Boardwalk Area	
37			Light Pole #1:	
38		N-05	Mesh Node - Exterior	
39			antennae	
40		AP-01	Access Point	
41			antennae	
42	16		Ext PTZ Camera - w/pole mount enclosure	
43			Light Pole #2:	
44		AP-02	Access Point	
45			antennae	
46	17		Ext PTZ Camera with wireless card- w/pole mount enclosure	
47			- pole mount bracket	
48	18		Ext PTZ Camera with wireless card- w/pole mount enclosure	
49			- pole mount bracket	

50			Garfield Building Area	
51		N-06	Mesh Node - Interior	
52			antennae	
53	3		Ext PTZ Camera - corner Mt on Building	
54			- corner mount bracket	
55	4		Ext PTZ Camera - corner Mt on Building	
56			- corner mount bracket	
57			Cat6 cabling to LAN as required (300' each)	
58		N-07	Mesh Node - Exterior - on light pole	
59			antennae	
60	5		Ext PTZ Camera - w/pole mount enclosure	
61			- pole mount bracket	
62			Lake St. Intersection (Lake St. & Interstate 35)	
63		N-08	Mesh Node - Exterior - on TRAFFIC light pole (semaphore)	
64			antennae	
65	15		Ext PTZ Camera - w/pole mount enclosure	
66			- pole mount bracket	
67			Lakewood Water Treatment	
68		AP-03	Access Point - lake front building	
69			antennae	
70	19		Ext PTZ Camera WITH WIFI CARD - Building Mount	
71			- mounting bracket	
72	20		Ext PTZ Camera WITH WIFI CARD -Building Mount	
73			- mounting bracket	
74		AP-04	Access Point - Water Treatment Bldg	
75			antennae	
76			Cat6 cabling to LAN as required	
77			Multi-port encoder for existng 5 analog cameras	
78			24 port network switch	
79			REMOTE Server	
80			Highway 39 Bridge	
81	1		Ext Fixed Dome Camera - Mt on Bridge to view	
82			waterway with 16GB SD card	
83			- Mounting bracket	
84	2		Ext Fixed Dome Camera - Mt on Bridge to view	
85			traffic with 16GB SD card	
86			- Mount on ENCLOSURE	
			- IR Illuminator	
87			Cellular Modem (in enclosure)	
88			Multi-port Network Switch (in enclosure)	
89			Cat6 cabling and conduit as required	

90			Alternate 1: City Hall Cameras	
91	21		Ext PTZ camera - Corner mount on SE corner just below parapet	
92			- corner mount bracket	
93	22		Ext PTZ camera - Corner mount on SW corner just below parapet	
94			- corner mount bracket	
95			Cat6 cabling and conduit as required	
96			Alternate 2: Encoding existing Aerial Bridge Analog Cameras	
97			Multi-port encoders (3) for existng 10 analog cameras	
98			Cat6 cabling and conduit as required	
99			Alternate 3: Portable PTZ with Cellular Modem	
100	27		Ext PTZ Camera in environmental enclosure	
101			- Pole/Wall Mount ENCLOSURE	
102			Cellular Modem (in enclosure)	
103			Alternate 4: Cameras on the Bong & Blatnik Bridges	
104		N-09	Mesh Node - Exterior Mt on Highway 2 (The Bong) Bridge	
105			Antennas Mt on Highway 2 (The Bong) Bridge	
106	25		Ext PTZ Camera - Mt on Highway 2 (The Bong) Bridge	
107			- mounting bracket	
108	26		Ext PTZ Camera - Mt on Highway 2 (The Bong) Bridge	
109			- mounting bracket	
110			Cabling and conduit as required	
111		N-10	Mesh Node - Exterior Mt on Hwy I35 (The Blatnik) Bridge	
112			Antennas Mt on Hwy I35 (The Blatnik) Bridge	
113	23		Ext PTZ Camera - Mt on Hwy I35 (The Blatnik) Bridge	
114			- mounting bracket	
115	24		Ext PTZ Camera - Mt on Hwy I35 (The Blatnik) Bridge	
116			- mounting bracket	
117			Cabling and conduit as required	
118			Alternate 5: Additional nine(9) Days of Video Storage	
119			Increase from Three (3) Pivot 3 CloudBank Appliances	
120			Alternate 7: Flir PT-304 Thermal Imaging Camera System	
121			PT-304 camera with heater/blower and all necessary mounting hdwr	
122	28		- Conduit/cabling to connect to Mesh Node	
123			Video Content Analytics Unit Pricing per Behavior per Video Channel	
124			Penetration of unauthorized people / vehicles into restricted areas	
125			Tailgating of people / vehicles through secure checkpoints	
126			Traffic obstacles	
127			Unattended objects	
128			Vehicles stopped in no-parking zones, highways or roads	
129			Removal of assets	
130			Crowding or grouping	
131			Loitering	

APPENDIX B - CITY OF DULUTH SUPPLEMENTARY GENERAL CONDITIONS

(Begins on next page)

CITY OF DULUTH - PART II -
SUPPLEMENTARY GENERAL CONDITIONS FOR FEDERALLY AND/OR CITY ASSISTED ACTIVITIES
(revised 9/2/09)

The following conditions take precedence over any conflicting conditions in this Contract.

<u>Section</u>	<u>Title</u>
1	Restrictions on Disbursements, Subcontractors Federal Agency Requirements, Separability, Property
2	Miscellaneous Provisions
3	Definitions
4	Environmental Provisions
5	Contract Compliance
6	Records, Reports and Information, Audits and Inspections
7	Conflict of Interest and Lobbying
8	Labor Standards - Physical Improvement Projects
9	Minnesota Department of Transportation Specification 1960 Partial Payments
10	Housing and Urban Development (HUD) Section 4010
11	Equal Opportunity and Affirmative Action
12	Employment Opportunities - "HUD Section 3"
13	Federal Requirements for Minority/Women Business Enterprises Contract Guidance - MPFA
14	Forms

Section I

Restrictions on Disbursements

No money under this Contract shall be disbursed by the City to any Contractor except pursuant to a written contract which incorporates the applicable PART II, Supplementary General Conditions for Federally and/or City Assisted Activities, and unless the Contractor is in compliance with the Federal Agency requirements with regard to accounting and fiscal matters to the extent they are applicable.

Subcontractors

(A) The Contractor shall include in any subcontract the clauses set forth in the PART II, Supplementary General Conditions for Federally and/or City Assisted Activities in their entirety and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

(B) The Contractor shall not subcontract any part of the work covered by this Contract or permit subcontracted work to be further subcontracted without the City's prior written approval of the subcontractors. The City will not approve any subcontractor for work covered by this Contract who is at the time ineligible under the provisions of any applicable regulations issued by a Federal Agency or the Secretary of Labor, United States Department of Labor, to receive an award of such subcontract.

Federal Agency Requirements

Unearned payments under this Contract may be suspended or terminated upon refusal to accept any additional conditions that may be imposed by the Federal Agency at any time; or if the grant, if applicable, to the City under which this Contract is made is suspended or terminated.

Separability

If any provisions of this Contract is held invalid, the remainder of this Contract shall not be affected thereby if such remainder would then continue to conform to the terms and requirements of applicable law.

Property

Acquisition, use, and disposal of all property, materials and goods acquired as a result of activities made possible by this Contract shall be accomplished in accordance with the applicable provisions of Federal Management Circular (FMC)-74-7, as amended.

Section 2

Miscellaneous Provisions

(A) **Copyrights.** In the event this Contract results in a book or other copyrightable material, the author is free to copyright the work, but Federal Agency and the City reserve a royalty-free, nonexclusive, and irrevocable license to reproduce, publish or otherwise use, all copyrighted material and all material which can be copyrighted.

(B) **Patents.** Any discovery or invention arising out of or developed in the course of work aided by this Contract shall be promptly and fully reported to the Federal Agency and the City for determination by the Federal Agency as to whether patent protection on such invention or discovery shall be sought and how the rights in the invention or discovery, including rights under any patent issued thereon, shall be disposed of and administered in order to protect the public interests.

(C) **Political Activity Prohibited.** None of the funds, materials, property or services provided directly or indirectly under this Contract shall be used in the performance of this Contract on any partisan political activity, or to further the election or defeat of any candidate for public office.

(D) **Lobbying Prohibited.** None of the funds under this Contract shall be used for publicity or propaganda purposes designed to support or defeat legislation pending before the Congress or the City.

(E) **Prohibition of and Elimination of Lead-Based Paint Hazard.** Notwithstanding any other provision, the Agency and Contractor agree to comply with the regulation issued by the Secretary of Housing and Urban Development set forth in 37 F. R. 22732-3 and all applicable rules and orders issued thereunder which prohibit the use of lead-based paint in residential structures undergoing Federally assisted construction or rehabilitation and require the elimination of lead-based paint hazards. Every contract or subcontract, including paint, pursuant to which such Federally assisted construction or rehabilitation is performed shall include appropriate provisions prohibiting the use of lead-based paint.

(F) **Architectural Barriers Act.** The design for and construction of any facility funded in whole or in part by this Contract shall be in conformance with the American Standard Specification for Making Buildings and Facilities Accessible and Usable by the Physically Handicapped, Number A-117.1-1971, as modified.

(G) **Relocation and Acquisition.** Any relocation or acquisition resulting from activities funded in whole or in part by this Contract shall be in conformance with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (40 U.S.C. 4601) and the implementing regulations 24CFR Part 42.

(H) **Prohibition Against Payments of Bonus or Commission.** The assistance provided under this Contract shall not be used in the payment of any bonus or commission for the purpose of obtaining Federal Agency approval for such assistance, or Federal Agency approval of applications for additional assistance, or any other approval or concurrence of a Federal Agency required under this Contract, Federal Law or Federal Regulations thereto; provided, however, that reasonable fees or bonafide technical, consultant, managerial or other such services, other than actual solicitation, are not hereby prohibited if otherwise eligible as project costs.

(I) **Hatch Act.** Where applicable, the Contractor will comply with the provisions of the Hatch Act which limits the political activity of the Contractor's employees.

Section 3
Definitions

(A) City means the City of Duluth, Contracting Officer, or other persons authorized to act on behalf of the City of Duluth.

(B) Contracting Officer is the delegated representative of the City who has the responsibility for administering the Project.

(C) Contractor means an entity, whether public or private, which furnishes (other than standard commercial supplies, office space or printing services) to the City, products, services or supplies as described in this project Contract.

(D) Federal Agency means the United States, the District of Columbia, and any executive department, independent establishment, administrative agency, or instrumentality of the United States or of the District of Columbia, including any corporation, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or by any of the foregoing departments, establishments, agencies, and instrumentalities. The term Federal Agency shall also include the person or persons authorized to act on behalf of said Federal Agency.

(E) Project means the activities to be undertaken by the Contractor as described in this Contract, which from time to time may be amended by mutual consent of the City and Contractor.

(F) Subcontractor means an entity, regardless of tier, which has entered into an agreement with the Contractor or another Subcontractor, to undertake certain Project activities as described in that agreement.

(G) The term labor standards, as used in the Contract, means the requirements of the Davis-Bacon Act, the Contract Work Hours and Safety Standards Act (other than those relating to safety and health), the Copeland Act, and the prevailing wage provisions of the other statutes listed in 20 CFR 5.1.

(H) Work means all labor necessary to produce the construction required by the Contract Documents, all materials and equipment incorporated or to be incorporated in such construction, products, services, or supplies required by the Contract Documents, or any other requirements set forth in the Contract.

(I) Additional Definitions, that are applicable to the Labor Standards provisions - Section 8 - of this Contract can be found in 29CFR5.2 as published by the U.S. Department of Labor and said definitions are hereby incorporated by reference into the provisions of this Contract.

Section 4
Environmental Provisions

(A) The Contractor agrees to follow the regulations, requirements, policies, goals and procedures set forth by the Council on Environmental Quality (CEQ) under provisions of the National Environmental Policy Act (NEPA) (Pub. L 91-190, 42 U.S.C. 4321 et seq.), Executive Order 11514, and 40 CFR Part 1500.

(B) **Historic Properties.** The Contractor agrees to follow the regulations, requirements, policies, goals, and procedures set forth under provisions of the National Historic Preservation Act of 1966 (Pub. L. 89-665); Preservation of Historic and Archeological Data Act of 1974 (Pub. L. 93-291); Executive Order 11593; 36 CFR , Part 800 and applicable State legislation or regulations.

(C) **Coastal Zones and Wetlands.** The Contractor agrees to follow the regulations, requirements, policies, goals and procedures set forth under provisions of the Coastal Zone Management Act of 1972 (Pub. L. 92-583) and applicable State legislation or regulations.

(D) **Noise.** The Contractor agrees to comply with provisions set forth in the U.S. Department of Housing and Urban Development Handbook 1390.2, Noise Abatement and Control, Department Policy, Responsibility and Standards, 1971.

(E) **Flood Plain.** The Contractor agrees to comply with the provisions set forth in the Flood Disaster Protection Act of 1973 (Pub. L. 93-234) and implementing regulations; Title 24, Chapter X, Subchapter B, National Flood Insurance Program, Executive Order 11296, and Executive Order 11988 relating to the evaluation of flood hazards.

(F) **Air Quality.** The Contractor agrees to comply with provisions set forth in the Clean Air Act (Pub. L. 90-148) and Clean Air Act Amendments of 1970 (Pub. L. 91-604); and applicable U.S. Environmental Protection Agency implementing regulations.

(G) **Water Quality.** The Contractor agrees to comply with the provisions set forth in the Federal Water Pollution Control Act (Pub. L. 92-500) and applicable U.S. Environmental Protection Agency implementing regulations, and Executive Order 11288 relating to the prevention, control, and abatement of water pollution.

(H) **Wildlife.** The Contractor agrees to comply with the provisions of the Fish and Wildlife Coordination Act (Pub. L. 85-264).

Section 5
Contract Compliance

(A) In the event of the Contractor's noncompliance with the provisions of this Contract or with any of the said regulations, the City may withhold payment(s) until evidence of compliance by the Contractor has been demonstrated, or the Contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further City contracts.

(B) In the event the Contract is terminated or canceled as a result of noncompliance with any of the provisions of this Contract, the City may subject to bids the remainder of the Project for which this Contract was made. The City shall have the right upon termination or suspension to withhold all further payments under this Contract to the Contractor. Upon the award of a new contract for the remainder of the Project, the City shall pay to the Contractor an amount no more than the balance remaining due to the Contractor less the sum of the costs incurred by the City which are necessary in preparing the new bid specifications. In the event the amount paid the Contractor prior to the date of termination or cancellation exceeds the full amount of this Contract less the cost of the new contract and the additional costs mentioned above, the Contractor agrees to reimburse the City for such excess amount within ninety days after the new contract is awarded by the above procedures.

(C) Provisions contained in subparagraph (A) and (B) above shall not be interpreted as precluding any authorized Federal, State, or County governmental unit from exercising their legal administrative or other responsibilities in respect to the enforcement by said governmental units of laws or regulations concerning activities of the Contractor.

Section 6
Records

(A) **Establishment and Maintenance of Records.** Records shall be maintained in accordance with requirements prescribed by the Federal Agency or the City with respect to all matters covered by this Contract. Except as otherwise authorized by the Federal Agency, such records shall be maintained for a period of three years after receipt of final payment under this Contract.

(B) **Documentation of Costs.** All costs shall be supported by properly executed payrolls, time records, invoices, contracts, or vouchers, or other official documentation evidencing in proper detail the nature and propriety of the charges. All checks, payrolls, invoices, contracts, vouchers, orders, or other accounting documents pertaining in whole or in part to this Contract shall be clearly identified and readily accessible.

Reports and Information

At such times and in such forms as the Federal Agency or the City may require, there shall be furnished to the Federal Agency or the City such statements, records, data and information as the Federal Agency or the City may request pertaining to matters covered by this Contract.

Audits and Inspection

At any time during normal business hours and as often as the City, the Federal Agency and/or the Comptroller General of the United States may deem necessary, there shall be made available to the City, the Federal Agency and/or representatives of the Comptroller General for examination of all its records with respect to all matters covered by this Contract and will permit the City, the Federal Agency and/or representative of the Comptroller General to audit, examine and make excerpts or transcripts from such records, and to make audits of all contracts, invoices, materials, payrolls, records of personnel, conditions of employment, and other data relating to all matters covered by this Contract.

Section 7

Conflict of Interest and Lobbying

(A) **Interest of Members, Officers, or Employees of the City, Members of Local Governing Body, or Other Public Officials.** No member, officer, or employee of the City, or its designees or agents, or member of the governing body of the City, during his/her tenure of for one year thereafter, shall have any interest, direct or indirect in any contract or subcontract, or the proceeds thereof, for work to be performed in connection with the Project assisted under this Contract. Any contract in which any of the above indicated individuals becomes directly or indirectly, interested, personally or as a member of a firm, or as an officer, director, or stockholder of a corporation, shall be and become absolutely void; and any money which shall have been paid on such contract by the City may be recovered back from any or all persons interested therein, by a joint action or several actions.

(B) The Contractor agrees that he will incorporate into every contract required to be in writing the following provisions: **Interest of Contractors and Employees** - The Contractor covenants that he presently has no interest and shall not acquire any interest, direct or indirect, in the Project which would conflict in any manner or degree with the performance of this Contract, and no person having any conflicting interest shall be employed. Any interest on the part of the Contractor or his employees must be disclosed to the Federal Agency and the City. Provided, however, that this paragraph shall be interpreted in such a manner so as not to unreasonably impede any statutory requirements that opportunity be provided for employment of and participation by certain residents of a designated geographical are, if applicable.

(C) **Interest of Member or of Delegate to Congress.** No member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this Contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit.

(D) The Contractor by signing this document certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Contractor, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the Contractor shall complete and submit Standard Form -LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The above certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1332, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

(E) The parties to this Contract certify and agree that they are under no contractual or other disability which would prevent them from complying with the terms of this Contract.

Section 8

Labor Standards - Physical Improvement Projects

Where applicable, there shall be included in all construction, rehabilitation, alteration or repair contracts with private entities made possible by or resulting from this Contract, the following Labor Standards provisions;

(A) General Requirements.

(1) **Subcontracts.** The Contractor shall include in any subcontract the clauses set forth in Section 8, **Labor Standards**, in their entirety and also a clause requiring the subcontractors to include these clauses in any Tower tier subcontract which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

(2) The transporting of materials and supplies to or from the site of the Project or Program to which this Contract pertains by the Employees of the Contractor or of any subcontractor, and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the Project or Program to which this Contract pertains by persons employed by the Contractor or by any subcontractor, shall for the purpose of this Contract, and without limiting the generality of the foregoing provisions of this Contract, be deemed to be work to which these **Labor Standards** provisions are applicable.

(3) No person under the age of eighteen years shall be employed on work covered by this Contract.

(4) In connection with the performance of work under this Contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment except as provided by Public Law 89-176, September 10, 1955 (18 U.S.C. 4082 (c) (2)) and Executive Order 11755, December 29, 1973.

(5) The Contractor will permit authorized representatives of the Federal Agency and the City to interview employees during working hours on the job.

(6) No employee to whom the wage, salary, or other **Labor Standards** provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the Labor Standards applicable under this Contract to his employer.

(B) **Safety Standards.** No Contractor or subcontractor contracting for any part of a construction contract shall require any laborer or mechanic, including apprentices and trainees, employed in the performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous to his

health or safety, as determined under construction safety and health standards promulgated by the Secretary of Labor. The Contractor or subcontractor comply with all the rules, regulations, and relevant orders, promulgated by the Secretary of Labor pursuant to Public Law 91-54.

(C) **Davis-Bacon Act - 29 CFR 5.5**

Refer to Section 10, Page 9

Housing and Urban Development (HUD) form-4010 (07/2003) Ref Handbook 1344.1

City of Duluth “Mini Davis-Bacon”

(D) **City of Duluth - Minimum Wage Ordinance 8940, as Amended.**

(1) On a project (as defined below) funded in whole or in part by federal and/or state funds, these local provisions shall prevail in those instances where the requirements of the local provisions are equal to or greater than similar minimum labor standards provisions as set forth in applicable federal and/or state laws and regulations.

(2) In all contracts in excess of \$2,000 for projects (as defined below), the Contractor’s particular attention is called to Ordinance 8940, effective June 8, 1989, respectively coded as Article IV of Chapter 2 of the Duluth City Code, and entitled “An Ordinance Pertaining to Wages and Working Hours of Persons on Public Works in the City of Duluth”, as set forth below:

(3) **Definitions.**

For the purposes of this section the following words and phrases shall have the meanings respectively ascribed to them in this section:

(a) **Basic hourly rate.** - The hourly wage paid to any employee.

(b) **Prevailing wage rate.** - The basic hourly rate plus fringe benefits prevailing in the city of Duluth as determined by the United States secretary of labor pursuant to the Davis-Bacon act, as amended; provided that whenever employer and employee organizations employing and representing a majority of a class of workers in a particular industry within the city jointly certify that the prevailing basic hourly rate plus fringe benefits of such workers differs from the amount determined by the secretary of labor, the certified rate shall be considered to be the prevailing wage rate for such class of workers in that industry.

(c) **Fringe benefits.** - Employer contribution for health and welfare benefits, vacation benefits, pension benefits, and all other economic benefits other than the basic hourly rate.

(d) **Apprentice** - An employee who is working under a training program which is approved either by the U.S. Department of Labor Bureau of Apprenticeship & Training or the Minnesota Director of Voluntary Apprenticeship; see apprentice ratios on page 22 and HUD 4010 in Section 10..

(e) **Trainee** - An employee registered with the U. S. Department of Labor Employment & Training Administration; see HUD 4010 in Section 10.

(f) **Project.** - Erection, construction, demolition, painting, remodeling or repairing of any public building, highway, sidewalk, bridge, water or gas line, sewer and sewage treatment facility or other public work performed under contract with the city.

(g) **Labor, mechanic.** - All persons utilized, employed or working on a project who are doing work usually done by mechanics and laborers, including proprietors, partners, and members of cooperatives.

(4) **Wage Rates and Hours for City of Duluth Projects.**

(a) Any contract which provides for a project of estimated total cost of over \$2,000.00 shall contain a stipulation that no laborer, mechanic or apprentice-trainee employed directly upon the project work site by the contractor or any subcontractor shall be permitted or required to work at a rate of pay less than the prevailing wage rate; nor shall any such employee be permitted or required to work more than 8 hours in any work day or 40 hours in any work week unless he is paid at a rate of at least 1½ times the basic hourly rate for all hours in excess of 8 per day or after 40 per week and unless he receives fringe benefits that are at least equal to those in the prevailing wage rate; provided that whenever employer and employee organizations employing and representing a majority of a class of workers in a particular industry within the city jointly certify that the maximum number of hours that such persons may work under existing labor agreements before overtime wages must be paid differs from the hours specified in this paragraph, the maximum number of hours specified in such labor agreements shall be substituted for those specified above in applying the provisions of this paragraph to such workers.

(b) The word “or” in the state statute and the City of Duluth Code refers to the number of hours worked in any one week or, in the alternative, the number of hours worked in any one day in the week (the days in one week being totaled for reporting purposes); the law requires use of the alternative which results in the higher number of overtime hours for each employee whose time is being reported. All hours exceeding 40 per week are subject to overtime in addition to the daily overtime requirements.

EXCEPTIONS: Federal government funding only and HUD (Housing and Urban Development) funding - see point “e”

In summary, if a project is solely funded with City of Duluth monies, the City allows the employees to work four ten-hour days and be paid at the regular hourly rate for those ten hours; exceeding hours must be paid at the overtime rate. An employer may not withhold overtime payment exclusively until 40 hours per week have been worked. Daily overtime must be paid as it is earned.

● **The base workweek hours must be clearly indicated on each payroll. Employees may be assigned a different workweek; however, that must be clearly marked beside the employees’ names.**

The following are examples of how these rules apply to different situations.

TT refers to the total time worked on the day or in the week

RT refers to the hours worked at the regular rate of pay (straight time)

OT refers to the hours worked for which overtime must be paid

	State Funded with or without federal funding Projects							City-only Funded Projects (4 ten-hour days)						
	Mon	Tues	Wed	Thurs	Fri	Sat	Total	Mon	Tues	Wed	Thurs	Fri	Sat	Total
TT	10	10	10	10	0	6	46	10	10	10	10	0	6	46
RT	8	8	8	8	0	6	38	10	10	10	10	0	0	40
OT	2	2	2	2	0	0	8	0	0	0	0	0	6	6

	State Funded with or without federal funding Projects							City-only Funded Projects (4 ten-hour days)							
	Mon	Tues	Wed	Thurs	Fri	Sat	Total		Mon	Tues	Wed	Thurs	Fri	Sat	Total
TT	0	10	10	0	7	0	27		10	0	12	0	0	0	32
RT	0	8	8	0	7	0	23		10	0	10	10	0	0	30
OT	0	2	2	0	0	0	4		0	0	2	0	0	0	2

(c) Overtime Calculations

Minnesota Statutes Chapter 177.42, subd 4 specifies that the prevailing hours of labor may not be more than eight hours per day or more than 40 hours per week (as stated above in (b), the City of Duluth does allow for ten hours per day/40 hours per week with City funding *only*).

Minnesota Statutes Chapter 177.42, subd 5 defines the hourly basic rate as the hourly wage paid to any employee. (subd 6): The prevailing wage rate means the hourly basic rate of pay plus the contribution for health and welfare benefits, vacation benefits, pension benefits, and any other economic benefit paid to the largest number of workers engaged in the same class of labor within the area...

Minnesota Statutes Chapter 177.43, subd 1 (1) ...employees are permitted to work more hours than the prevailing hours of labor [being] paid for all hours in excess of the prevailing hours at a rate of at least 1-1/2 times the hourly basic rate of pay. (2) A laborer or mechanic may not be paid a lesser rate of wages than the prevailing wage rate in the same or most similar trade or occupation in the area.

An employer may pay a lower hourly rate and higher fringe benefit rate--to a bona fide plan--than stated in the wage decision providing the total of the two rates is equal to or greater than the total in the wage decision.

Overtime Calculation with Fringe Benefits Paid to Bona Fide Plans

For overtime purposes, an employer paying higher fringe benefits to a bona fide plan and paying a lower hourly rate MUST calculate the overtime on the higher hourly rate as stated in the contract's wage decision.

Overtime Calculation with Cash Payment of Fringe Benefits

When the fringe benefit is paid directly to an employee, the prevailing base rate and the fringe benefit rate for a specific classification are totaled to arrive at the hourly rate. *Overtime is calculated (1.5 x) the base rate with the fringe benefit amount added to that rate: base rate x 1.5 + fringe benefit rate = overtime rate.*

(d) A contractor shall not reduce a worker's private, regular rate of pay when the wage rate certified by the U. S. Department of Labor or the Minnesota Department of Labor & Industry is less than the worker's normal hourly wage [Minnesota Statute 181.03 subdivision 1(2)].

(e) Regular Time & Overtime Definitions

- **State of Minnesota** funded projects with or without federal funding *only allow for five eight-hour days per week at regular time.* Overtime is calculated at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision--OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount.
- **City of Duluth** funded projects do permit four ten-hour work days at regular time--see point 4-a, b for stipulations. Overtime is calculated at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision--OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount.
- **Federal** funded only projects allow overtime pay for hours worked in excess of 40 in a workweek at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision--OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount.
- **HUD** funded projects allow overtime pay for hours worked in excess of 40 in a workweek at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision--OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount.

(f) The minimum hourly prevailing wages are contained in each project specification. When both federal (general decision rates from the U. S. Department of Labor) and State of Minnesota prevailing wages for state funded construction projects from the Minnesota Department of Labor and Industry are used, the prime contractor and all subcontractors including trucking operations, are required to pay the higher of the two wages for all laborers and mechanics [MnDOT Contract Administration Manual, Section 5-591.320].

(g) The prime contractor and any lower-tier subcontractor shall review all wage decisions and compensate a worker according to the type of work performed and at the rate that is the greatest.

(h) State of Minnesota prevailing wages typically list two rates for each classification with two effective dates. Should any City of Duluth contract continue to and past the second effective date, that rate and fringe benefit will be in effect through the remainder of the project.

(i) All contracts for city projects shall have applicable schedules of prevailing wage rates set forth in the contract. Schedules of applicable prevailing wage rates shall be present on all project job sites and shall either be posted on the site or be on the person of any supervisor in charge of the job site.

(j) Employees on projects shall be paid at least weekly. Fringe benefits shall be paid either in cash or to an employee benefit plan that has been approved by the U.S. Department of Labor.

■ The fringe benefit package is an integral portion of the prevailing wage. Should the prime contractor become delinquent with any fringe benefit plan administrator's requirements for monthly payment, an estimated amount due that plan plus penalties will be withheld from the monthly estimate(s). This also pertains to subcontractors; their fringe plan payment delinquency will affect the monthly estimate(s) in the same manner. See MnDOT Specification 1906 on page eight.

See Statement of Compliance and Certified Payroll Report requirements in Section 10, HUD 4010 and web sites in Section 14, Forms.

(k) Any contractor or subcontractor working on a project shall furnish the City with **original** certified payroll reports with **original signatures** relating to the project. Such certified payroll reports shall be **submitted weekly** on U.S. Department of Labor standard forms (WH-347) or their equivalent--using the same format--to the City of Duluth Labor Standards representative. All City of Duluth funded projects must have the base workweek hours indicated on the

certified payroll form and/or beside each employee's name (should some employees be working different base workweeks).

(l) No contractor or subcontractor working on a project shall evade or attempt to evade the provisions of this section through the use of non-recognized training programs. The only employees involved in training programs that shall be allowed to work on projects covered by this section shall be apprentice-trainees as defined by this article.

(m) Any person violating the provisions of this section shall be guilty of a misdemeanor with each day of violation constituting a separate offense. In addition, if the prevailing wage rate and accompanying fringe benefit rate is not paid to employees working on a project, the City of Duluth may withhold contract payments to the prime contractor until such deficiencies are corrected. Should fringe benefits be paid to authorized Plans, the payments must be made within the demands of those Plans. Delinquencies may result in withholding of project funds to the prime contractor.

(n) This section shall not apply to contracts for projects where the total cost of the project is less than \$2,000.00; nor to materialmen who do no more than deliver materials to the work site, except that this section shall apply to employees who deliver asphalt, concrete or mineral aggregate such as sand, gravel or stone where such material is incorporated into the project by depositing the material substantially in place, either directly or through spreaders, from the transporting vehicle.

(5) **Helpers**

A helper may perform work only if the helper classification is specified and defined in the federal wage decision and/or State of Minnesota wage decision incorporated into the project contract. Without such a helper classification, the contractor must assign a job classification that is the "same or most similar" [Minnesota Statute 177.44, subdivision 1] and compensate the helper for the actual work performed regardless of the helper's skill level.

(5) **Apprentice Ratios**

Journeyworkers must be on site with the apprentices and their hours must match.

FUNDING SOURCE:

City of Duluth and State of Minnesota with or without Federal funding

(i) Apprentices are not permitted to work alone under any circumstances.

(ii) Working foremen are acceptable as a journeyworker PROVIDING he/she is in the same classification.

» Example: carpenter foreman and carpenter apprentice

• Ratios are determined by the trade's labor agreement.

• In the absence of ratio language, the following State of Minnesota apprenticeship ratios will be applied:

(apprentice:journeyworker) 1:1 2:4 3:7 4:10, etc.

• Employees working in excess of the allowable ratio must be paid the full journeyworker compensation.

• Out-of-ratio apprentices will be calculated beginning with the **apprentice at the highest level of training** and, then, to less senior apprentices in their rank order.

• Should two or more out-of-ratio apprentices have the same level of training, whomever was on the work site first will receive journeyworker pay; if the apprentices at the same level of training began work on the project site at the same time, hours worked out-of-ratio for which restitution is due will be divided among those apprentices.

Examples:

Four apprentices working unsupervised are on site. [4:0]

Ratio calls for four apprentices and ten journeyworkers [4:10]

Correction: all apprentices will receive the full journeyworker compensation as apprentices are not permitted to work alone.

Three apprentices and two journeyworkers are on site. [3:2]

Ratio calls for three apprentices and seven journeyworkers [3:7]

Two journeyworkers may accompany only one apprentice; therefore, the two highest level apprentices are paid the full journeyworker compensation.

Even though this particular job has three apprentices—the second journeyworker is a mute point; a third journeyworker would also be a mute point in this example.

Correction: the two highest level apprentices are paid the full journeyworker compensation and the third lower level apprentice is considered in ratio.

HUD (CDBG) and Federal funding only

• Apprentices are not permitted to work alone unless the U. S. Department of Labor-approved agreement allows that practice.

• Working foremen are acceptable as a journeyworker PROVIDING he/she is in the same classification.

» Example: electrician foreman and electrician apprentice

• Ratios are determined by the trade's U. S. Department of Labor-approved agreement.

• In the event of the absence of ratio language in the applicable agreement, the Minnesota Department of Labor ratio of one apprentice for the first journeyworker and one apprentice for each three journeyworkers thereafter will be applied, (i.e., 1:1, 2:4, 3:7, 4:10, etc.).

• **The legal apprentices are those who first came to work on the job site;** in the event that all apprentices begin work on the project site at the same time, hours worked out-of-ratio for which restitution is due will be divided among the apprentices.

• Time cards will be required to substantiate the start times.

• Employees working in excess of the allowable ratio--or for which U. S. Department of Labor-apprentice agreement/certificate is not provided--must be paid the full journeyworker compensation.

Examples:

Four apprentices and one journeyworker are on site. [4:1]

Ratio calls for four apprentices and ten journeyworkers. [4:10]

The first apprentice on site is considered in ratio as one journeyworker may only accompany one apprentice [1:1]; this particular job has four apprentices.

Correction: the second through the fourth apprentices coming on site are paid the full journeyworker compensation.

Six apprentices and two journeyworkers are on site [6:2]

Ratio calls for six apprentices and sixteen journeyworkers [6:16]

The first apprentice on site is considered in ratio as two journeyworkers may only accompany one apprentice; this particular job has six apprentices—the second journeyworker is a mute point.

Correction: the second through sixth apprentices coming on site are paid the full journeyworker compensation.

(6) **Poster Boards**

The prime contractor must construct and display a poster board, which contains all required posters, is legible and is accessible to all workers from the first day of work until the project is 100% complete. Prime contractors are not allowed to place a poster board at an off-site facility location.

(7) **Trucking Issues**

a) For the purpose of sections seven and eight, the term “owner” includes all persons having an ownership interest in the trucking entity or a partnership interest in the trucking entity and has a legal and rightful title to the vehicle(s) or has an approved lease on the vehicle(s). “Operate” means the owner either physically drives the vehicle or hires another to physically drive the vehicle, yet maintains the right to direct the day-to-day operations of the vehicle.

b) Trucking Operations Definitions:

Independent Trucking Operator: an individual or partnership who owns or holds a vehicle under lease and who contracts that vehicle and the owner’s services to an entity which provides construction services to a public works project. The individual owns or leases and drives the equipment, is responsible for the maintenance of the equipment, bears all operating costs, determines the details and means of performing the services, and enters into a legally binding agreement that specifies the relationship to be that of an independent contractor and not that of an employee.

Multiple Truck Operations: any legal business entity that owns more than one vehicle and hires the vehicles out for services to brokers or contractors on public works projects. The owners of a trucking firm may either drive the vehicles or hire employees to drive the vehicles. Employee drivers are subject to the appropriate prevailing wage rate. The owner driving a vehicle is obligated to account for the value of his/her services as a driver at the appropriate prevailing wage.

Partnerships: a legal business entity where two or more individuals hold vehicles under lease and contract those vehicles and their services to an entity which provides construction services to a public works project. The partners own or lease the equipment, are responsible for maintenance and all operating costs, drive the equipment, determine the details and means of performing the services, and enter a legally binding agreement that specifies the relationship to be that of a partner and not that of an employee. All partners are subject to the appropriate prevailing wage.

Corporation: any legal business entity that owns or leases vehicles to provide construction services to public works projects. All individuals are employees of the corporation and subject to the appropriate prevailing wage regardless of title or position.

Broker: an individual or firm who (activities include, but are not limited to):

- contracts to **provide** trucking services [equipment and driver] in the construction industry to users of such services, such as prime contractors and various subcontractors of the prime;
- contracts to **obtain** services from other trucking operations and dispatches them to various assignments;
- receives payment from the users (such as prime contractors and various subcontractors) in consideration for the trucking services provided; and
- makes payment to the providers (trucking operations so **contracted** with) for their services.

(8) **Specific documentation from trucking operations.**

Independent Trucking Operators

The owner/operator of a truck must submit a copy of his/her commercial driver’s license (CDL), cab card, and insurance certificate for each truck the owner/operator drives on each construction project *before commencing work on that project*. These documents must be sent to the prime contractor who will then forward the material to Labor Standards, Engineering Division at the City of Duluth.

Multiple Truck Operators

Weekly certified payrolls and payment of corresponding prevailing wages plus the fringe benefit package will be required for each project where trucks are operating. This covers the owner plus all employees performing work on the project.

Partnerships

Weekly certified payrolls and payment of corresponding prevailing wages plus fringe benefit packages will be required for each project where trucks are operating. This covers all partners of the organization who perform work on the project.

Each partner performing work on a project must submit a copy of his/her commercial driver’s license (CDL), cab card, and insurance certificate for the truck being operated with that weekly certified payroll. It is not necessary to repeat such supporting documentation until a different truck is used and/or certificates or licenses have expired.

Employees of the partnership are always reported on a weekly certified payroll and paid the appropriate prevailing wage plus fringe benefit package for the work being performed.

Corporations

All persons employed by the corporation are subject to receive payment of the prevailing wage plus the fringe benefit package for the work performed on a project regardless of title or position. Weekly certified payrolls must be submitted for all work performed on the project.

Brokers

Truck ownership and a **bonafide contract** between the broker and another trucking operation, a prime contractor, or a subcontractor must be identified. Paperwork must be submitted with the month end trucking report to the City of Duluth Labor Standards representative - Engineering. Certified payrolls are not required when the above documentation is provided and approved.

(10) **Month End Trucking Report - ONLY REQUIRED WITH STATE OF MINNESOTA FUNDING**

The Minnesota Department of Transportation Month End Trucking Report (Mn/DOT TP-90550 7-05) and Minnesota Department of Transportation Month End Trucking Report Statement of Compliance (Mn/DOT TP-90551 7-05) are *only required on state funded projects*.

A guide for completing the forms including definitions and the reports, themselves, may be downloaded from:

www.dot.state.mn.us/const/labor/truckinginfo.html

Payment to the prime contractor may be withheld until documentation is received and approved.

(11) **Truck Rental Rates - ONLY REQUIRED WITH STATE OF MINNESOTA FUNDING**

Truck rental rates are listed in the prevailing wage section of the project specifications/contract.

(12) **Minnesota Rules 5200.1105 and 5200.1106**

These rules are incorporated into this supplementary general conditions by reference and are found on this web site:

www.revisor.leg.state.mn.us/rules/?id=5200

(13) **Truck Axles**

Per Minnesota Rules 5200.1100 Master Job Classifications, a truck “unit” refers to all axles including the steering axle.

A tag axle is also counted as one of the axles.

Examples: four rear axles plus one steering axle = five axles total
one rear axle plus one steering axle = two axles total

(14) **Non-Compliance and Enforcement**

- a) The prime contractor shall be liable for any unpaid wages to its workers or those of its lower-tier subcontractors, trucking companies/Multiple Truck Owners (MTO's) and/or Independent Truck Owner/Operator (ITOs) [MnDOT Standard Specifications for Construction, Section 1801].
- b) See Section 9, MnDOT Specification 1906 Partial Payments.

(15) **IC-134 form - Withholding Affidavit for Contractors**

The IC-134 form will be required from all Multiple Truck Operators, Partnerships, and Corporations performing trucking services on a project before the retainage or all remaining funds can be released. Web site for completing form online: www.mndor.state.mn.us
The form, itself, is found at: www.taxes.state.mn.us/forms/ic134.pdf

(16) **Owners, Supervisors, Foremen listed on certified payrolls.**

All persons working on a City of Duluth project including owners, partners, supervisors, salaried persons, and working foremen who perform laborer and/or mechanic work shall be reported on the weekly certified payroll reports including all data required of any laborer or mechanic. (ordinance 8731, 6/24/85)

(17) **Supporting documentation.**

At his/her discretion, the City of Duluth Labor Standards representative may demand proof of payment of the prevailing wage which may include copies of a payroll register, itemized time sheet and matching cancelled check, or any other supporting documents as stipulated. Payment to the prime contractor may be withheld until documentation is received and approved.

(18) **Kickbacks from Public Works employees prohibited.**

No contractor working on a project or other person shall, by force intimidation, or threat of termination of employment, cause any employee working on a project to give up any part of the compensation to which he is entitled under his contract of employment.

Section 9

**Minnesota Department of Transportation Specification 1906 Partial Payments
Process For "Withholding Contract Monies" and "Default and Termination of a Contract" 11/5/04**

Mn/DOT Specification 1906 Partial Payments describes the Commissioner's authority to withhold funds to protect the Department's interests. In addition, Specification 1808 Default and Termination of a Contract describes the Commissioner's authority to take the prosecution of the work out of the hands of the Contractor.

Additionally, on projects funded in whole or part with federal funds and in accordance with the Required Contract Provisions Federal-Aid Construction Contracts Form – 1273, Section IV, Subpart 6, "Withholding", incorporated into federal aid contracts, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds until such violations have ceased.

However, the Department must give the Contractor, and it's Sureties due notice prior to exercising these authorities. The withholding of contract funds, in accordance with Specification 1906 or the Required Contract Provisions Federal-Aid Construction Contracts Form – 1273, Section IV, Subpart 6, "Withholding", should be implemented as soon as a possible prevailing wage violation is recognized. However, Default and Termination of a Contract, in accordance with Specification 1808, should only be exercised as a "last resort" if the Contractor is not willing to comply.

Definitions

(Mn/DOT Standard Specifications for Construction 2000 Edition, Section 1103)

Commissioner: The Commissioner of the Minnesota Department of Transportation, or the chief executive of the department or agency constituted for administration of Contract work with its jurisdiction.

Contractor: The individual, firm or corporation Contracting for and undertaking prosecution of the prescribed work; the party of the second part to the Contract, acting directly or through a duly authorized representative.

Department: The Department of Transportation or the State of Minnesota, or the political subdivision, governmental body, board, commission, office, department, division, or agency constituted for administration of the Contract work within its jurisdiction.

(Form 1273 - 29 CFR, Part 5.1, Definitions)

Contracting Officer: The individual, a duly appointed successor or authorized representative who is designated and authorized to enter into Contracts on behalf of the Federal Agency and/or the City of Duluth.

Important Considerations

1. Upon completion of the work under a contract, the department should consider issuing the final voucher as soon as possible. Failure to finalize a contract expeditiously could result in subsequent claims that would prevent the department from finalizing the contract. However, before the issuance of the final voucher, the department must be able to ensure that the terms of the contract have been satisfied. Failure on the part of the department to ensure compliance could result in the Mn/DOT state aid division retaining funds from the department in accordance with *Minnesota Rules 8820.3000, subpart 5*.
2. On every contract, the department should withhold the final retainage in accordance with the following guidelines: (1) if the total amount of the contract is \$1,000,000 or more, the department should retain funds not more than \$50,000, (2) if the total amount of the contract is less than \$1,000,000, the department should retain 5% of the total contract, (3) retainage should be withheld until the department can ensure that the contractor has met the terms of the contract or until the finalization of the contract.
3. This guide specifies that the department verbally notify the bonding company early in the process. Generally, as a "rule of thumb", notifying the bonding company is usually the "last resort". However, the justification for the early notification is related to the language found in *Minnesota statute 574.31, subdivision 2*, which summarizes that if an individual or the department does not submit a claim on the payment bond within 120 days after the completion of work under the contract, the claim can be denied.

The following are general guidelines that should be followed prior to placing a Contractor in default:

Step 1: Upon verbal or written notification that a possible prevailing wage violation exists, the Department should give written notice to the Contractor regarding the nature of the claim, along with the Department's intent to withhold monies until the claim is investigated and determined to be in compliance. Additionally, the Department should inform the Contractor that the bonding company has been verbally notified of the claim. Please be aware, the Department should ensure employee confidentiality at all times.

Upon a preliminary determination surrounding the financial extent of the claim, the Department should consider retaining a "reasonable" portion of one or more partial estimates in accordance with Mn/DOT's 2000 Standard Specifications for Construction, Section 1906; or on federal aid contracts, in accordance with the Required Contract Provisions Federal-Aid Construction Contracts Form – 1273, Section IV, Subpart 6, "Withholding".

If it is determined that the claim is valid, the Department should schedule a meeting with the Contractor and attempt to resolve the matter. If the claim is determined to be invalid, the Department should release any partial estimates that may have been held as a result of the claim. However, the Department should continue to withhold the final retainage in accordance with the above-mentioned: Important Considerations, 2.

Step 4: If resolution cannot be obtained through a meeting, the Department should order the Contractor, in writing, to complete their obligations under the contract. The letter should clearly state the circumstances under which the Department has deemed that the Contractor has not met the terms of the contract.

Additionally, the Department should include a reasonable deadline for this obligation to be completed. A copy of this letter should be forwarded to the Surety, District State Aid Engineer (DSAE), Labor Compliance Unit and the Department's Attorney.

- Step 5: In the event that the Contractor does not respond to the Department's written order, the Department should send a similar letter, requesting that the Contractor respond immediately, in writing, regarding the Contractor's intention to comply or not comply with the order. A copy of this letter should be forwarded to the Surety, District State Aid Engineer (DSAE), Labor Compliance Unit and the Department's Attorney.
- Step 6: If the Department still does not get a proper response from the Contractor, the Department should write another letter, addressed to both the Contractor and the Surety, specifying all the facts of the alleged breach, demanding that the Contractor, or its Surety, respond satisfactorily within 10 days or the Department may exercise its authority to Default and Terminate the Contract in accordance with/DOT's 2000 Specifications for Construction, Section 1808. It's important to provide sufficient detail so that the Surety understands the situation. This notification should be sent by certified mail. A copy of this letter should be forwarded to the Surety, District State Aid Engineer (DSAE), Labor Compliance Unit and the Department's Attorney.
- Step 7: If the Contractor or Surety is unresponsive after 10 days, the Department should consult with their attorney to consider proceeding with Default and Termination of the Contract.
- Step 8: Upon termination of the contract, the Department provides a written order to the Surety, requiring the Surety to bring resolution to the prevailing wage violation.
- Step 9: The Department places the Contractor on a Non-Responsible Bidder's List and rejects any future awards.

Section 10

Federal Labor Standards Provisions / U.S. Department of Housing and Urban Development Office of Labor Relations

Previous editions are obsolete

HUD-4010 (06/2009) ref. Handbook 1344.1

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of

the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. **Instead, the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number).** The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site.

The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to, and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of

progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Section 11

Equal Opportunity Laws and Regulations

- (A) In addition to Contract specifications set forth below, the Contractor shall conduct and administer this Contract in compliance with:
- (1) Title VI of the Civil Rights Act of 1964 (Pub. L. 88-352) and implementing regulations issued at 24 CFR Part 1;
 - (2) Title VIII of the Civil Rights Act of 1968 (Pub. L. 90-284), as amended, and implementing regulations;
 - (3) Section 109 of the Housing and Community Development Act of 1974, as amended; and the regulations issued pursuant thereto (24 CFR Section 570.601);
 - (4) Section 3 of the Housing and Urban Development Act of 1968, as amended, and implementing regulations of 24 CFR Part 135;
 - (5) Executive Order 11246, as amended by Executive Order 11375 and 12086 and implementing regulations at 41 CFR Chapter 60;
 - (6) Executive Order 11063, as amended by Executive Order 12259 and implementing regulations at 24 CFR Part 107;
 - (7) Section 504 of the Rehabilitation Act of 1973 (Pub. L. 93-112), as amended, and implementing regulations when published for effect;
 - (8) The Age Discrimination Act of 1975, as amended, (Pub. L. 94-135) and implementing regulations when published for effect;
 - (9) The Minnesota Human Rights Act of 1974, as amended (Chapter 363).

Equal Opportunity and Affirmative Action

(A) Contractors and Subcontractors that have a work force in excess of fifty (50) employees and a contract in excess of \$50,000.00 shall prepare and maintain an appropriate affirmative action plan in accordance with the provisions of 41 CFR 60 "Compliance Responsibility for Equal Opportunity".

(B) Non-segregated Facilities. The Contractor shall certify that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Contractor covenants that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. As used in this paragraph the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, creed, religion, national origin, ancestry, age, marital status, status with respect to public assistance, and/or disability because of habit, local custom, or otherwise.

General Provisions Against Discrimination

- (A) In all hiring or employment made possible by or resulting from this Contract, there:
- (1) will not be any discrimination against any employee or applicant for employment because of race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability.
 - (2) affirmative action will be taken to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability. This requirement shall apply to, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; lay-off or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. There shall be posted in conspicuous places available to employees and applicants for employment, notices setting forth the provisions of this clause. All solicitations or advertisements for employees shall state that all qualified applicants will receive consideration for employment without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability.

(B) No person in the United States shall, on the grounds of race, color, creed, religion, national origin, age, sex, marital status, status with respect to public assistance, and/or disability, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity made possible by or resulting from this Contract. The Contractor and each employer will comply with all requirements imposed by or pursuant to the regulations of the Federal Agency effectuating Title VI of the Civil Rights Act of 1966. The Contractor will note this requirement in all solicitations or advertisements for employees. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(C) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice advising the labor union or workers' representative of the Contractor's commitments under these provisions, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(D) The Contractor hereby agrees that he will incorporate into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained pursuant to this Contract, the equal opportunity clause which is a part of these Contract Documents.

(E) The Contractor further agrees that he will be bound by the equal opportunity clause and other provisions of 41 CFR Chapter 60, with respect to his own employment practices when he participates in federally assisted construction work: **Provided:** That of the Contractor so participating is a State or Local Government, the above equal opportunity clause is not applicable to any agency, instrumentality, or subdivision of such government which does not participate in work on or under the Contract. Also, the Contractor will make his files available to inspection by appropriate government agencies and shall furnish those reports as may be required by said agencies.

(F) The Contractor agrees that he will assist and cooperate actively with the Federal Agency and the Secretary of Labor in obtaining the compliance of subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that he will furnish the Federal Agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that he will otherwise assist the Federal Agency in the discharge of its primary responsibility for securing compliance.

(G) The Contractor further agrees that he will refrain from entering into any contract or any contract modification subject to Executive Order 11246 of September 24, 1965, with a subcontractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order. In addition, the Contractor agrees that if he fails or refuses to comply with these undertakings, the City or the Federal Agency may take any or all of the following actions: Terminate or suspend in whole or in part this Contract; refrain from extending any further assistance to the Contractor under the Project with respect to which the failure or refusal occurred until satisfactory assurance of future compliance has been received from such Contractor and refer the case to the Department of Justice for appropriate legal proceedings.

Affirmative Action - "Construction Contracts" over \$10,000

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity
(Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

<u>Timetables</u>	<u>Goals for minority participation (percent)</u>	<u>Goals for female participation (percent)</u>
From April 1, 1980 until revised	3.0	6.9

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the City and to the Director of the Office of Federal Contract Compliance Programs; U.S. Department of Labor, ESA/OFCCP, 16th Floor, 230 South Dearborn Street, Chicago, Illinois, 60604, within 10 working days of award of any construction subcontract and/or subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the contractor and/or subcontractor; employer identification number; estimated dollar amount of the prime contract; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Notice, and in the Contract, the "covered area" is all work under a contract currently held with the City of Duluth, Minnesota.

**Standard Federal Equal Employment Opportunity
Construction Contract Specifications (Executive Order 11246)**

1. As used in these specifications:

- a) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor; or any person to whom the Director delegates authority;
- b) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- c) "Minority" includes:
 - (iii) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (iv) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (v) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (vi) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notices of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitments and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of officers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, creed, religion, national origin, sex, ancestry, age, marital status, status with respect to public assistance and/or disability.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

Affirmative Action for Handicapped Workers

(applies to contracts in excess of \$2,500)

(A) The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: Employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

(B) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(C) In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations and relevant orders of the Secretary of Labor issued pursuant to the Act.

(D) The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.

(E) The Contractor will notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

(F) The Contractor will include the provisions of this clause in every subcontract or purchase order of \$2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era

(applies to contracts in excess of \$10,000)

(A) The Contractor will not discriminate against any employee or applicant for employment because he or she is a disabled veteran or veteran of the Vietnam era in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified disabled veterans and veterans of the Vietnam era without discrimination based upon their disability or veterans status in all employment practices such as the following: Employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

(B) The Contractor agrees that all suitable employment openings of the Contractor which exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract and including those occurring at an establishment of the Contractor other than the one wherein the contract is being performed but excluding those of independently operated corporate affiliates, shall be listed at an appropriate local office of the State employment service system wherein the opening occurs. The Contractor further agrees to provide such reports to such local office regarding employment openings and hires as may be required.

State and local government agencies holding Federal contracts of \$10,000 or more shall also list all their suitable openings with the appropriate office of the State employment service, but are not required to provide those reports set forth in paragraphs (D) and (E).

(C) Listing of employment openings with the employment service system pursuant to this clause shall be made at least concurrently with the use of any other recruitment source or effort and shall involve the normal obligations which attach to the placing of a bona fide job order, including the acceptance of referrals of veterans and non-veterans. The listing of employment openings does not require the hiring of any particular job applicant or from any particular group of job applicants, and nothing herein is intended to relieve the Contractor from any requirements in Executive Orders or regulations regarding nondiscrimination in employment.

(D) The reports required by paragraph (B) of this clause shall include, but not be limited to, periodic reports which shall be filed at least quarterly with the appropriate local office or, where the Contractor has more than hiring location in a State, with the central office of that State employment service. Such reports shall indicate for each hiring location (1) the number of individuals hired during the reporting period, (2) the number of non-disabled veterans of the Vietnam era hired, (3) the number of disabled veterans of the Vietnam era hired, and (4) the total number of disabled veterans hired. The reports should include covered veterans hired for on-the-job training under 38 U.S.C. 1787. The Contractor shall maintain at each hiring location copies of the reports submitted until the expiration of one year after final payment under the contract, during which time these reports and related documentation shall be made available, upon request, for examination by any authorized representatives of the contracting officer of the Secretary of Labor. Documentation would include personnel records respecting job openings, recruitment and placement.

(E) Whenever the Contractor becomes contractually bound to the listing provisions of this clause, it shall advise the employment service system in each State where it has establishments of the name and location of each hiring location in the State. As long as the Contractor is contractually bound to these provisions, and has so advised the State system, there is no need to advise the State system of subsequent contracts. The Contractor may advise the State system when it is no longer bound by this contract clause.

(F) This clause does not apply to the listing of employment openings which occur and are filled outside of the 50 States, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands.

(G) The provisions of paragraphs (B), (C), (D), and (E) of this clause do not apply to openings which the Contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement for that opening.

(H) As used in this clause:

(1) "All suitable employment openings" includes, but is not limited to, openings which occur in the following job categories: Production and non-production; plant and office; laborers and mechanics; supervisory and non-supervisory; technical; and executive, administrative, and professional openings as are compensated on a salary basis of less than \$25,000 per year. This term includes full-time employment, temporary employment of more than 3 days' duration, and part-time employment. It does not include openings which the Contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement nor openings in an educational institution which are restricted to students of that institution. Under the most compelling circumstances an

employment opening may not be suitable for listing, including such situations where the needs of the Government cannot reasonably be otherwise supplied, where listing would be contrary to national security, or where the requirement of listing would otherwise not be for the best interest of the Government.

(2) "Appropriate office of the State employment service system" means the local office of the Federal-State national system of public employment offices with assigned responsibility for serving the area where the employment opening is to be filled, including the District of Columbia, Guam, Puerto Rico, and the Virgin Islands.

(3) "Openings which the Contractor proposes to fill from within his own organization" means employment openings for which no consideration will be given to persons outside the Contractor's organization (including any affiliates, subsidiaries, and the parent companies) and includes any openings which the Contractor proposes to fill from regularly established "recall" lists.

(4) "Openings which the Contractor proposes to fill pursuant to a customary and traditional employer-union hiring arrangement" means employment openings which the Contractor proposes to fill from union halls, which is part of the customary and traditional hiring relationship which exists between the Contractor and representatives of his employees.

(I) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(J) In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations and relevant orders of the Secretary of Labor issued pursuant to the Act.

(K) The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified disabled veterans and veterans of the Vietnam era for employment, and the rights of applicants and employees.

(L) The Contractor will notify each labor union representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of the Vietnam Era Veterans Readjustment Assistance Act, and is committed to take affirmative action to employ and advance qualified disabled veterans and veterans of the Vietnam era.

(M) The Contractor will include the provisions of this clause in every subcontract or purchase order of \$10,000 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to the Act, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

Section 12 **Employment Opportunities - "HUD Section 3"**

General

These requirements apply to the City of Duluth contracts receiving assistance under the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant (CDBG) Program.

Type of Covered Projects

24CFR570.607 (b) of the HUD CDBG Program Regulations state in part "... that employment and other economic opportunities arising in connection with housing rehabilitation, housing construction, or other public construction projects shall to the greatest extent feasible, and consistent with existing Federal, State, and local laws and regulations be given to low- and very low-income persons.

Thresholds

In accordance with the provisions of 24CFR135.3(a) (3) (ii) (A), the requirements of this Section apply to those recipients as defined at 24CFR135.5 when the amount of this contract exceeds \$200,000.

In addition, in accordance with the provisions of 24CFR135.3 (a) (3) (ii) (B), the requirements of this Section apply to any contractor or subcontractor whose contract exceeds \$100,000 as a result of assistance provided under this contract.

Requirements (Section 3 Clause)

(A) The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

(B) The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

(C) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement, or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(D) The Contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

(E) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligation under 24 CFR part 135.

(F) Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD-assisted contracts.

Section 13
Federal Requirements for Minority/Women Business Enterprises Contract Guidance - MPFA

General

Municipalities that receive loan funding must comply with Federal requirements concerning utilization of Minority Business Enterprises (MBE) and Women's Business Enterprises (WBE). These requirements are designed to encourage the prime contractors to utilize MBEs and WBEs whenever procurement opportunities occur.

Regulation

40 C.F.R. Section 35.3145(d) Application of other Federal Authorities, M/WBE Requirements

Executive Orders No. 11625, 12138 and 12432 - Promoting the use of M/WBEs

Section 129 of Public Law 100-590 - Small Business Administration Reauthorization and Amendment Act of 1988

Regulations detailed in the EPA's *Cross-Cutting Federal Authorities - Clean Water Act State Revolving Fund Program and Safe Drinking Water Act State Revolving Fund Program*

Implementation

The "fair share" target percentage participation proposed for this project is 3.5 percent (3.5%) for MBE and 11.5 percent (11.5%) for WBE.

If the Contractor intends to let any subcontractors for a portion of the work, the Contractor shall take affirmative steps to assure that minority and women businesses are utilized when possible as sources of supplies, equipment, construction and services. Affirmative steps shall include the following:

- a) Include qualified minority businesses on solicitation lists.
- b) Assure that minority businesses are solicited whenever they are potential sources.
- c) When economically feasible, divide total requirements into smaller tasks or quantities so as to permit maximum small and minority business participation.
- d) Where the requirement permits, establish delivery schedules, which will encourage participation by minority businesses.
- e) Use the services and assistance of the Office of Minority Business Enterprise of the Department of Commerce.

The low bidder will be required to submit to the City of Duluth documentation of his good faith efforts to meet the targeted goals of utilizing MBEs and WBEs.

Section 14 - Forms

**Minnesota Department of Transportation and City of Duluth, Minnesota
funded certified payroll forms**

- Statement of Compliance Form
www.dot.state.mn.us/const/labor/lcuforms.html
- Certified Payroll Form
www.dol.gov/esa/forms/whd/WH347.pdf

**U. S. Department of Housing and Urban Development and federal
government funded certified payroll forms**

- Statement of Compliance Form & Certified Payroll Forms
www.dol.gov/esa/forms/whd/WH347.pdf
- Fringe Benefit Form - use the second page of the MnDOT Statement of Compliance (form 21658 3/01)
www.dot.state.mn.us/const/labor/lcuforms.html

Minnesota Department of Transportation Trucking Requirements

- Month End Trucking Report
- Month End Trucking Report Statement of Compliance
- Definitions and instructions: www.dot.state.mn.us/const/labor/lcuforms.html

APPENDIX C - CITY OF DULUTH PERFORMANCE AND PAYMENT BOND FORMS

(Begin on next page)



CITY OF DULUTH
PERFORMANCE BOND

KNOW ALL MEN BY

THESE PRESENTS: That we:

_____ (contractor's name)
(hereinafter called the "Contractor") located at: _____

_____ (contractor's address)

and _____ (surety's name)

(a corporation holding a certificate of the Insurance Commissioner of the State of Minnesota showing that it is authorized to contract as a surety, hereinafter called the "Surety") located at:

_____ (surety's address)

are held and firmly bound unto the City of Duluth (hereinafter called the "Owner"), in the penal sum of _____

Dollars (\$ _____) for the payment of which we bind ourselves, our heirs, executors and administrators, successors and assigns, for the faithful performance of a written contract for the purpose of:

according to plans, profiles, and specifications thereto annexed. A copy of that contract is incorporated herein by reference and is made a part hereof as if fully copied herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH That,

- A) If the Contractor shall in all respects comply with the terms and conditions of the Contract (which includes the contract documents) and such alterations as may be made in said contract as documents therein provide for, and shall complete the contract in accordance with its terms,
- B) If the Contractor shall indemnify, defend and save harmless the owner from all costs, expenses, damages, injury or conduct, want or care or skill, negligence or default, including patent infringement on the part of the Contractor, agents or employees, in the execution or performance of the contract,
- C) If the Contractor shall indemnify the owner for all costs that may accrue on account of the

enforcing of the terms of the bond, if action is brought on the bond, including reasonable attorney's fees, in any case where such action is successfully maintained,

D) If the Contractor shall comply with all laws pertaining to doing the work under the contract,

Then, this obligation shall be void; the Contractor and Surety jointly and severally agree to pay to the Owner any difference between the sum to which the Contractor will be entitled on the completion of the contract and that which the Owner may be obliged to pay for the completion of the work by contract or otherwise, and any damages, direct or indirect, or consequential, which the Owner may sustain on account of the work, or on account of the failure of the Contractor to properly and in all things, keep and execute all of the provisions of the Contract, provided however that Surety's liability to pay damages is limited to the amount of the Performance Bond as set forth above.

And, the said Contractor and Surety hereby further bind themselves, their successors, executors, administrators and assigns, jointly and severally, that they will employ and fully protect the said Owner against and will pay any and all amounts, damages, costs and judgements which may be recovered against or which the Owner may be called upon to pay to any person or corporation by reason of any damage arising from the performance of said work, repair or maintenance thereof, or the manner of doing the same, or the neglect of the said Contractor or his agents or servants, or the improper performance of the said work by the Contractor or his agents or servants, or the infringements of any patent rights by reason of the use of any material furnished or work done, as aforesaid, or otherwise. For the purpose of this paragraph, a subcontractor shall be deemed to be the agent or employee of the Contractor to the extent of his subcontract.

The Contractor and the Sureties do hereby expressly waive any objection that might be interposed as to the right of the Owner to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either and any of them might interpose to an action brought hereon by any person, firm, or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed, rendered or furnished as aforesaid, upon the ground that there is no law authorizing the Owner to require the foregoing provisions to be placed in this bond.

And the Surety, for value received, hereby stipulates and agrees that the obligations of the Surety and this bond shall in no way be impaired or affected by any extension of time, modification, omission, addition or change in or to the contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof, or by any assignment, subletting or other transfer thereof, or of any part thereof, or of any work to be performed, or of any moneys due or to become due thereunder; and

the said Surety does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors and other transferees, shall have the same effect as to said Surety as though done or omitted to be done by and in relation to the Contractor.

Signed this _____ day of _____, 20____.

Name of Principal

By

Name of Surety

By
Attorney-in-Fact

ACKNOWLEDGEMENTS

State of Minnesota)
) ss. Principal – Individual
County of St. Louis)

This instrument was acknowledged before me on _____
by _____.

Notary Seal

Notary Public

State of Minnesota)
) ss. Principal – Corporate or Partnership
County of St. Louis)

This instrument was acknowledged before me on _____
by _____ as _____
of _____.

Notary Seal

Notary Public

State of Minnesota)
) ss. Surety
County of St. Louis)

Be It Known, That on this _____ day of _____ A. D., 20____, came before me personally
_____, to me personally known, who being
by me duly sworn, did say that he/she is the _____ (title) of

the above named corporation which executed the foregoing bond as surety; that the seal affixed to the foregoing
instrument is the corporate seal of said corporation; that said instrument was executed in behalf of said corporation, by
authority of its Board of Directors; that said corporation hold a certificate of the Insurance Commissioner of the State
of Minnesota showing that it is authorized to contract as a surety; and said

acknowledged said instrument to be the free act and deed of said corporation.

Notary Seal

Notary Public

APPROVED AS TO FORM, CORRECTNESS AND VALIDTY HEREOF

Dated this _____ day of _____, 20 ____

Assistant City Attorney Duluth MN

Dated this _____ day of _____, 20 ____

Finance Director Duluth MN



CITY OF DULUTH
PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we:

_____ (contractor's name)
(hereinafter called the "Contractor") located at: _____

_____ (contractor's address)

and _____ (surety's name)

(a corporation holding a certificate of the Insurance Commissioner of the State of Minnesota showing that it is authorized to contract as a surety, hereinafter called the "Surety") located at:

_____ (surety's address)

are held and firmly bound unto the City of Duluth (hereinafter called the "Owner"), for the benefit of persons furnishing labor and materials for the contract set forth below, in the penal sum of

_____ Dollars (\$ _____) for the payment of which we bind ourselves, our heirs, executors and administrators, successors and assigns, for the payment of all labor and materials supplied by any person in the performance of a written contract for the purpose of:

_____ according to plans, profiles, and specifications thereto annexed. A copy of that contract is incorporated herein by reference and is made a part hereof as if fully copied herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH That,

- A) If the Contractor shall make payments, as they may become due, to all persons supplying "labor and materials," as defined in Minnesota Statutes Section 574.26, used directly or indirectly by the Contractor, or his Subcontractor, in the prosecution of the work provided for in the contract,
- B) If the Contractor shall indemnify the owner or other claimant for all costs that may accrue on account of the enforcing of the terms of the bond, if action is brought on the bond, including reasonable attorney's fees, in any case where such action is successfully maintained,

Then, this obligation shall be void; otherwise it shall remain in full force and effect.

And, the said Contractor and Surety agree that in accordance with Minnesota Statutes Section 574.26 not only said City, but any person furnishing "labor and materials," as defined in Minnesota Statutes 574.26, may sue on this bond for their use on account of any sums due them for anything so furnished.

The Contractor and the Sureties do hereby expressly waive any objection that might be interposed as to the right of the Owner to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either and any of them might interpose to an action brought hereon by any person, firm, or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed, rendered or furnished as aforesaid, upon the ground that there is no law authorizing the Owner to require the foregoing provisions to be placed in this bond.

And the Surety, for value received, hereby stipulates and agrees that the obligations of the Surety and this bond shall in no way be impaired or affected by any extension of time, modification, omission, addition or change in or to the contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof, or by any assignment, subletting or other transfer thereof, or of any part thereof, or of any work to be performed, or of any moneys due or to become due thereunder; and the said Surety does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors and other transferees, shall have the same effect as to said Surety as though done or omitted to be done by and in relation to the Contractor.

Signed this _____ day of _____, 20____.

Name of Principal

By

Name of Surety

By _____
Attorney-in-Fact

ACKNOWLEDGEMENTS

State of Minnesota)) ss. Principal – Individual
County of St. Louis)

This instrument was acknowledged before me on _____
by _____.

Notary Seal

Notary Public

State of Minnesota)) ss. Principal – Corporate or Partnership
County of St. Louis)

This instrument was acknowledged before me on _____
by _____ as _____
of _____.

Notary Seal

Notary Public

State of Minnesota)) ss. Surety
County of St. Louis)

Be It Known, That on this _____ day of _____ A. D., 20____, came before me personally
_____, to me personally known, who being
by me duly sworn, did say that he/she is the _____ (title)
of _____

_____ the above named corporation which executed the foregoing bond as surety; that the seal affixed to the foregoing instrument is the corporate seal of said corporation; that said instrument was executed in behalf of said corporation, by authority of its Board of Directors; that said corporation hold a certificate of the Insurance Commissioner of the State of Minnesota showing that it is authorized to contract as a surety; and said _____ acknowledged said instrument to be the free act and deed of said corporation.

Notary Seal

Notary Public

APPROVED AS TO FORM, CORRECTNESS AND VALIDTY HEREOF

Dated this _____ day of _____, 20 ____

Assistant City Attorney Duluth MN

Dated this _____ day of _____, 20 ____

Finance Director Duluth MN