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Bidder:	Bidder Rep:

Notes:

1. The City reserves the right to clarify, investigate, and request additional information to confirm the Bidder's claim regarding any data provided.
2. The Bid Evaluation is not based solely upon the information submitted on this form.
3. This form is made available to Bidders in both PDF and Microsoft Word format. In the event of a discrepancy between the forms, the PDF version will take precedance.
4. Complete "Bidder Response" section in full. Failure to complete or submit required information may result in disqualification of the complete Bid.
5. If insufficient space is provided, attach additional sheets with required information.

Item	Description	Bidder Response
1.0	**Product Lifecycle Guarantee**	
1.1	**Control System Lifecycle Guarantee**	
1.1.1	Are any proposed products scheduled to be removed from active sale and/or production? If yes, explain.	☐ No plans to remove the proposed products from active sale and/or production are in place. ☐ Yes, but plans call for _____more years of active sale/production. Describe products proposed to be removed from active sale: _____
1.1.2	Is a guarantee provided that the Control System equipment, including all programmable controller and HMI equipment and software will be operable, maintainable and fully supported by the manufacturer for at least twenty-five (25) years from the award of the Contract?	☐ Yes ☐ No If no, please identify the guarantee that can be provided:
1.1.3	How many years since formal introduction have the proposed product line(s) been offered?	**Model Series:** / **Years** _____ _____ _____ _____ _____ _____ _____ _____

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1.1.4	Is a guarantee provided that spare parts will be available for a period of ten (10) years from the time that any of the proposed products are removed from active sale? This requirement shall exist for all hardware components, except if the hardware component is directly replaceable by a newer module without wiring or software modifications.	☐ Yes ☐ No If no, please identify the guarantee that can be provided:
1.2	**Motor Control Centre Lifecycle Guarantee**	
1.2.1	Is a guarantee provided that the motor control centers will be operable, maintainable and fully supported by the manufacturer for at least twenty-five (25) years from the date of delivery to the City?	☐ Yes ☐ No If no, please identify the guarantee that can be provided:
1.2.2	Is a guarantee provided that spare parts and component repair services will be available for a period of ten (10) years from the time that any of the proposed products are removed from active sale? This requirement shall exist for all hardware components, except if the hardware component is directly replaceable by a newer module without wiring or software modifications.	☐ Yes ☐ No If no, please identify the guarantee that can be provided:
2.0	**Programmable Controller**	
2.1	**General**	
2.1.1	Manufacturer Name	
2.1.2	Years of experience in the design and manufacture of programmable control systems	years

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2.2	**Installed Base**	
2.2.1	Describe existing installed base within Manitoba	
2.2.2	Describe existing installed base in North America	
2.2.3	Describe existing installed base globally.	
2.3	**3rd Party Components**	
2.3.1	Identify all third party components proposed. Any 3rd party components proposed should be minor and in accordance with E2.1.1.	Manufacturer / Model / Description
2.4	**Processors**	
2.4.1	Number of different processors proposed as part of the proposal. Different models within the same series count as different processors.	
2.4.2	Firmware updates may be performed via:	☐ Remotely via Ethernet. ☐ Locally via removable flash memory card. ☐ Locally via USB ☐ Other: _____
2.5	**Power Supply Modules**	
2.5.1	Number of different power supply models proposed as part of the proposal.	
2.5.2	While 24VDC power supplies are specified, are power supply modules with 120 VAC input power available for all proposed systems.	☐ Yes ☐ No ☐ Partially If partially, please clarify: _____

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2.5.3	Is the capability to provide hot-swappable redundant power supply modules for each rack / chassis provided?	☐ Yes, for the Programmable Controller System 1 architecture. ☐ Yes, for the Programmable Controller System 2 architecture. ☐ Yes, for the Programmable Controller System 3 architecture. ☐ Yes, for the remote I/O architecture proposed. ☐ No.
2.6	**Remote I/O Communication**	
2.6.1	Remote I/O Communication Proposed	☐ Ethernet (Ethernet/IP) ☐ Ethernet (Modbus TCP) ☐ Ethernet (PROFINET) ☐ Other: Other Details: _____
2.6.2	For the Ethernet based Remote I/O protocols proposed, describe the type of Ethernet switches required.	☐ Any Ethernet switch produced by any vendor may be utilized. ☐ Any vendor's Ethernet/IP compatible switch may be utilized. ☐ A specialized switch from the control system manufacturer must be utilized. Describe below. ☐ A specialized switch from the control system manufacturer is recommended. Describe below. ☐ Other: _____ If a specialized switch from the control system manufacturer is required/recommended, describe the specific functionality it has that other manufacturers do not have. _____ _____ _____

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2.6.3	Does the proposed I/O system support redundant communication modules in each remote I/O rack, such that failure of a communication module will not inhibit remote I/O rack communications?	☐ Yes, separate redundant communication modules are included in the base proposal for all remote I/O associated with Programmable Controller System 1 and Programmable Controller System 2. ☐ Separate redundant communication modules are available as an option. Describe configuration below. ☐ Separate redundant communication modules are not supported. ☐ Other: _____ _____ _____ _____
2.7	**Instrument Integration**	
2.7.1	Describe the fieldbus protocol(s) proposed for integration of smart instruments.	☐ PROFIBUS DP/PA ☐ Foundation Fieldbus ☐ Other: _____
2.7.2	Describe the implementation method proposed for fieldbus communication.	☐ Via manufacturer in-rack module. ☐ Via 3rd party in-rack module. ☐ Via external gateway. Other details: _____
2.8	**I/O Modules**	
2.8.1	Names of different I/O series proposed as part of the proposal. (Fewer I/O series are desired)	1. 2. 3.
2.8.2	Describe the method proposed for HART Analog Input capability. *If multiple I/O series are proposed, identify for each series.*	☐ Native in-rack modules ☐ The HART I/O can be in the same rack as all other I/O ☐ The HART I/O is in a separate rack. ☐ 3rd party in-rack modules. ☐ External gateway modules. ☐ Not provided.

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2.8.3	Describe the method proposed for HART Analog Output capability. *If multiple I/O series are proposed, identify for each series.*	☐ Native in-rack modules ☐ The HART I/O can be in the same rack as all other I/O ☐ The HART I/O is in a separate rack. ☐ 3rd party in-rack modules. ☐ External gateway modules. ☐ Not provided.
2.8.4	Discrete Input Module, 120 VAC *Note: The Optional checkbox is to be utilized if the indicated model is available, but not proposed for any of the Systems.*	Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Input Voltage Range: _____ to _____ VAC Input Frequency Range: _____ to _____ Hz Minimum On-State Voltage: _____ VAC Maximum Off-State Voltage: _____ VAC On-State Current: _____ mA Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Input Voltage Range: _____ to _____ VAC Input Frequency Range: _____ to _____ Hz Minimum On-State Voltage: _____ VAC Maximum Off-State Voltage: _____ VAC On-State Current: _____ mA
2.8.5	Are 120VAC discrete input modules available, with each channel completely isolated? *If multiple I/O series are proposed, identify for each series.*	☐ Yes Model Number: _____ ☐ No
2.8.6	Discrete Input Module, 24 VDC *Note: The Optional checkbox is to be utilized if the indicated model is available, but not proposed for any of the Systems.*	Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____
2.8.7	Discrete Output Module, 24 VDC *Note: The Optional checkbox is to be utilized if the indicated model is available, but not proposed for any of the Systems.*	Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Current drive capability: _____ A Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Current drive capability: _____ A

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2.8.8	Analog Input Module, 4-20 mA *Note: The Optional checkbox is to be utilized if the indicated model is available, but not proposed for any of the Systems.*	Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Galvanic Isolation b/w channels: ☐ Yes ☐ No Hardware resolution: _____ bit Module error: _____ % of range Normal mode noise rejection: _____ dB @ 60 Hz Common mode noise rejection: _____ dB @ 60 Hz Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Galvanic Isolation b/w channels: ☐ Yes ☐ No Hardware resolution: _____ bit Module error: _____ % of range Normal mode noise rejection: _____ dB @ 60 Hz Common mode noise rejection: _____ dB @ 60 Hz
2.8.9	Analog Input Module, 4-20 mA, with HART *Note: The Optional checkbox is to be utilized if the indicated model is available, but not proposed for any of the Systems.*	Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Galvanic Isolation b/w channels: ☐ Yes ☐ No Hardware resolution: _____ bit Module error: _____ % of range Input Impedance: _____ Ω Normal mode noise rejection: _____ dB @ 60 Hz Common mode noise rejection: _____ dB @ 60 Hz Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Galvanic Isolation b/w channels: ☐ Yes ☐ No Hardware resolution: _____ bit Module error: _____ % of range Input Impedance: _____ Ω Normal mode noise rejection: _____ dB @ 60 Hz Common mode noise rejection: _____ dB @ 60 Hz

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2.8.10	Analog Output Module, 4-20 mA *Note: The Optional checkbox is to be utilized if the indicated model is available, but not proposed for any of the Systems.*	Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Hardware resolution: _____ bit Maximum load impedance: _____ Ω Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Hardware resolution: _____ bit Maximum load impedance: _____ Ω
2.8.11	Analog Output Module, 4-20 mA, with HART *Note: The Optional checkbox is to be utilized if the indicated model is available, but not proposed for any of the Systems.*	Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Hardware resolution: _____ bit Maximum load impedance: _____ Ω Model Number: _____ Proposed for Systems: ☐ 1 ☐ 2 ☐ 3 ☐ Optional Number of channels per module: _____ Hardware resolution: _____ bit Maximum load impedance: _____ Ω
2.8.12	Availability of Specialty Modules *Note: No 3rd party modules are to be included in this section.*	High-Speed Counter: ☐ Model Number: _____ RTD Input: ☐ Model Number: _____ Thermocouple Input: ☐ Model Number: _____ Others: Description: _____ Model Number: _____ Description: _____ Model Number: _____ Description: _____ Model Number: _____

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2.9	**Hazardous Locations**	
2.9.1	Describe the proposed capability to install remote I/O nodes in hazardous locations.	☐ All the remote I/O proposed is rated for a Class I, Zone 2 location. ☐ Optional remote I/O modules are available that are rated for a Class I, Zone 2 location. ☐ The modules are functionally 100% equivalent to the proposed base remote I/O modules. ☐ The modules are slightly different compared to the proposed base remote I/O modules. (Describe below) ☐ Class I, Zone 2 modules are not available. Other details: _____
2.10	**Communication**	
2.10.1	Describe the method proposed for Modbus TCP communication.	☐ Native via Ethernet Port on Controller / Processor. ☐ Available via optional manufacturer in-rack module. ☐ Available via 3rd party in-rack module. ☐ Requires external gateway. Other details: _____
2.10.2	Describe the AS-Interface integration capabilities.	☐ Native in-rack module. ☐ Available via 3rd party in-rack module. ☐ Requires external gateway. Other details: _____
2.10.3	Communication, Ethernet (To Facility Process Network)	Communication speed: _____ Mbit Maximum number of connections: _____ ☐ HTTP webpage, non-configurable ☐ HTTP webpage, configurable ☐ Access protection via IP access list Protocol compatibility: ☐ Modbus/TCP ☐ Ethernet/IP ☐ PROFINET ☐ Other: _____

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2.11	**Fieldbus Capabilities – High-End PLC/PAC (Systems 1 & 2)**	
2.11.1	Ethernet/IP Fieldbus Support	☐ Native ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported Fieldbus configuration implemented with: ☐ Integral to programmable controller programming software ☐ Additional software package
2.11.2	Modbus TCP Fieldbus Support	☐ Native ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported Fieldbus configuration implemented with: ☐ Integral to programmable controller programming software ☐ Additional software package
2.11.3	PROFIBUS DP Fieldbus Support	☐ Native ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported Fieldbus configuration implemented with: ☐ Integral to programmable controller programming software ☐ Additional software package Modules certified by: ☐ PROFIBUS International ☐ Not certified ☐ Other: _____

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2.11.4	PROFIBUS PA Fieldbus Support	☐ Native ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported Fieldbus configuration implemented with: ☐ Integral to programmable controller programming software ☐ Additional software package Modules certified by: ☐ PROFIBUS International ☐ Not certified ☐ Other: _____
2.11.5	Foundation Fieldbus Support	☐ Native ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported Fieldbus configuration implemented with: ☐ Integral to programmable controller programming software ☐ Additional software package Modules certified by: ☐ Fieldbus Foundation ☐ Not certified ☐ Other: _____

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2.11.6	AS-i Fieldbus Support	☐ Native ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported Fieldbus configuration implemented with: ☐ Integral to programmable controller programming software ☐ Additional software package Modules certified by: ☐ AS-International ☐ Not certified ☐ Other: _____
2.11.7	HART Support	☐ Native HART modules available (offered by manufacturer) ☐ Native HART modules available (offered by 3rd party) ☐ Requires external modules. ☐ Manufacturer ☐ 3rd party Fieldbus configuration implemented with: ☐ Integral to programmable controller programming software ☐ Additional software package
2.12	**Miscellaneous**	
2.12.1	Are all timestamps for point state/value changes generated at the controller and passed to the HMI and Historian?	☐ Yes ☐ No Additional Information: _____
2.12.2	Is a comprehensive, integrated data point quality system provided, that propagates from the input module through to the HMI?	☐ Yes, it is fully integrated and automatic, and has all the desired specified features. ☐ Partially compliant with desired features. ☐ No Additional Information: _____

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2.13	**Environmental**	
2.13.1	Indicate the operating range for the programmable controller proposed:	**Programmable Controller System 1 / 2** Temperature range, operating: _____ to _____ °C Relative humidity, operating: _____ to _____ % Vibration limit, operating: _____ g Shock limit, operating: _____ g **Programmable Controller System 3** Temperature range, operating: _____ to _____ °C Relative humidity, operating: _____ to _____ % Vibration limit, operating: _____ g Shock limit, operating: _____ g
2.13.2	Is a hardened version of the proposed remote I/O available with conformal coating?	☐ Yes Model Series: _____ ☐ No
2.14	**Programmable Controller System 1**	
2.14.1	Provide a system architecture diagram of the proposed solution.	☐ Included in proposal.
2.14.2	Complete model number of the programmable controller/processor proposed.	
2.14.3	Controller / Processor Memory	Total memory: _____ MB User (program) memory: _____ MB Tag and I/O memory: _____ MB Other: _____ _____ MB % Memory Uitlization for Given Application: _____ % % Expansion Capability for Given Application: _____ %
2.14.4	Expected Controller / Processor Scan Time	With specified application: _____ ms With 100% expansion in place: _____ ms

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2.14.5	Controller / Processor built-in communications ports	☐ USB, qty: _____ ☐ RS-232, qty: _____ ☐ RS-485 (Modbus RTU), qty: _____ ☐ RS-485 (PROFIBUS DP), qty: _____ ☐ Ethernet (Modbus TCP), qty: _____ ☐ Ethernet (Ethernet/IP), qty: _____ ☐ Ethernet (PROFINET), qty: _____ ☐ PROFIBUS DP/PA, qty: _____ ☐ Other: _____, qty: _____
2.14.6	Controller / Processor built-in storage ports	☐ Secure Digital (SD), qty: _____ ☐ Compact Flash, qty: _____ ☐ Other: _____, qty: _____
2.14.7	Remote I/O Capabilities	Maximum remote discrete I/O: _____ Maximum remote analog I/O: _____ Total maximum remote I/O: _____
2.14.8	Identify the proposed redundancy solution between the redundant controllers and the remote I/O modules.	☐ Two independent Ethernet communication channels are provided between all devices, with separate Ethernet switches. ☐ Two independent communication modules are provided in each remote I/O rack. ☐ A single communication module with two ports is provided in each remote I/O rack. ☐ An Ethernet ring is utilized to provide fault tolerance for all devices. ☐ The remote I/O communication modules have integrated switches compatible with a fault tolerant ring. ☐ A dedicated switch per remote I/O node is utilized to provide fault tolerance. ☐ Other: _____ ☐ Communication redundancy is not provided. (Not acceptable)
2.14.9	Identify the proposed redundancy solution between the redundant controllers and the VFDs.	☐ Two independent Ethernet communication channels are provided to all VFDs, with separate Ethernet switches. VFDs have dual Ethernet ports. ☐ An Ethernet ring is utilized to provide fault tolerance for all VFDs. VFDs have dual Ethernet ports. ☐ An Ethernet ring is utilized to provide fault tolerance for the Ethernet network, but a single Ethernet line is provided to each VFD via switches on the ring. ☐ A dedicated switch is provided per VFD. ☐ Other: _____ ☐ Communication redundancy is not provided. (Not acceptable)

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2.14.10	Identify the proposed Modbus TCP capabilities.	☐ Modbus TCP capability is natively provided by the redundant processors. ☐ Modbus TCP capability is provided by redundant in-rack communication modules. ☐ Modbus TCP capability is provided by an external gateway. ☐ Other: _____
2.15	**Programmable Controller System 2**	
2.15.1	Provide a system architecture diagram of the proposed solution.	☐ Included in proposal.
2.15.2	Complete model number of controller / processor proposed.	
2.15.3	Controller / Processor Memory	Total memory: _____ MB User (program) memory: _____ MB Tag and I/O memory: _____ MB Other: _____ _____ MB % Memory Uitlization for Given Application: _____ % % Expansion Capability for Given Application: _____ %
2.15.4	Expected Controller / Processor Scan Time	With specified application: _____ ms With 100% expansion in place: _____ ms
2.15.5	Controller / processor built-in communications ports	☐ USB, qty: _____ ☐ RS-232, qty: _____ ☐ RS-485 (Modbus RTU), qty: _____ ☐ RS-485 (PROFIBUS DP), qty: _____ ☐ Ethernet (Modbus TCP), qty: _____ ☐ Ethernet (Ethernet/IP), qty: _____ ☐ Ethernet (PROFINET), qty: _____ ☐ PROFIBUS DP/PA, qty: _____ ☐ Other: _____, qty: _____
2.15.6	Controller / processor built-in storage ports	☐ Secure Digital (SD), qty: _____ ☐ Compact Flash, qty: _____ ☐ Other: _____, qty: _____

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2.15.7	Identify the proposed redundancy solution between the redundant controllers and the Remote I/O modules.	☐ Two independent Ethernet communication channels are provided between all devices, with separate Ethernet switches. ☐ Two independent communication modules are provided in each remote I/O rack. ☐ A single communication module with two ports is provided in each remote I/O rack. ☐ An Ethernet ring is utilized to provide fault tolerance for all devices. ☐ The remote I/O communication modules have integrated switches compatible with a fault tolerant ring. ☐ A dedicated switch per remote I/O node is utilized to provide fault tolerance. ☐ Other: _____ ☐ Communication redundancy is not provided. (Not acceptable)
2.15.8	Identify the proposed redundancy solution between the redundant controllers and the VFDs.	☐ Two independent Ethernet communication channels are provided to all VFDs, with separate Ethernet switches. VFDs have dual Ethernet ports. ☐ An Ethernet ring is utilized to provide fault tolerance for all VFDs. VFDs have dual Ethernet ports. ☐ An Ethernet ring is utilized to provide fault tolerance for the Ethernet network, but a single Ethernet line is provided to each VFD via switches on the ring. ☐ A dedicated switch is provided per VFD. ☐ Other: _____ ☐ Communication redundancy is not provided. (Not acceptable)
2.15.9	Identify the proposed redundancy of the proposed fieldbus.	☐ Two redundant independent fieldbus networks are provided, with a maximum of ten devices (one branch) unavailable with a single cable / module failure. ☐ Multiple fieldbus branches are provided, such that a maximum of ten devices (one branch) is unavailable with a single cable / module failure. ☐ Other: _____ ☐ Fieldbus redundancy is not provided.

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2.16	**Programmable Controller System 3**	
2.16.1	Provide a system architecture diagram of the proposed solution.	☐ Included in proposal.
2.16.2	Complete model number of controller / processor proposed.	
2.16.3	Controller / Processor Memory	Total memory: _____ MB User (program) memory: _____ MB Tag and I/O memory: _____ MB Other: _____ _____ MB % Memory Uitlization for Given Application: _____ % % Expansion Capability for Given Application: _____ %
2.16.4	Expected controller / processor scan time	With specified application: _____ ms With 100% expansion in place: _____ ms
2.16.5	Controller / processor built-in communications ports:	☐ USB, qty: _____ ☐ RS-232, qty: _____ ☐ RS-485 (Modbus RTU), qty: _____ ☐ RS-485 (PROFIBUS DP), qty: _____ ☐ Ethernet (Modbus TCP), qty: _____ ☐ Ethernet (Ethernet/IP), qty: _____ ☐ Ethernet (PROFINET), qty: _____ ☐ PROFIBUS PA, qty: _____ ☐ Other: _____, qty: _____
2.16.6	Controller / processor built-in storage ports:	☐ Secure Digital (SD), qty: _____ ☐ Compact Flash, qty: _____ ☐ Other: _____
2.16.7	Is power supply redundancy available for the proposed Programmable Controller System 3?	☐ Yes, dual power supplies are included. ☐ Yes, dual power inputs are included to a single power supply. ☐ Yes, dual power supplies are available as an option. ☐ Yes, dual power inputs are available as an option. ☐ No, not available. ☐ Other: _____

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2.16.8	Identify the proposed redundancy for the Ethernet process network connection (to HMI system).	☐ Two independent Ethernet communication ports are available for connection to two independent redundant Ethernet networks. ☐ A dedicated switch with dual homing capabilities is provided. ☐ Other: _____ ☐ Communication redundancy is not provided. Are the two Ethernet ports on: ☐ The processor ☐ The processor and a communication module ☐ Two communication modules ☐ N/A
2.16.9	Ethernet/IP Fieldbus Support	☐ Native ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported
2.16.10	Modbus TCP Fieldbus Support	☐ Native via process Ethernet port (can be utilized as I/O) ☐ Native via process Ethernet port ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported
2.16.11	PROFIBUS DP Fieldbus Support	☐ Native ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported

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2.16.12	Foundation Fieldbus Support	☐ Native ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported
2.16.13	AS-i Fieldbus Support	☐ Native ☐ With integrated in-chassis gateway offered by manufacturer. ☐ With external gateway offered by manufacturer. ☐ With integrated in-chassis gateway offered by 3rd party. ☐ With external gateway offered by 3rd party. ☐ Not supported
2.16.14	HART Support	☐ Native HART modules available (offered by manufacturer) ☐ Native HART modules available (offered by 3rd party) ☐ Requires external modules.
2.17	**Infi90 Termination Unit Cables**	
2.17.1	Indicate pre-manufactured cables with connectors that are proposed.	☐ Infi90 NRAI01 (AI) ☐ Infi90 NRAO01 (AO) ☐ Infi90 NRDI01 (DI) ☐ Infi90 NRDO02 (DO) ☐ Infi90 NTAI05 (AI) ☐ Infi90 NTDI01 (DI) ☐ Infi90 NTDI01 (AO) ☐ Infi90 NTDO01 (DO) ☐ Infi90 NTDO02 (DO)
2.17.2	Indicate the cable length that the pricing in Form B is based upon:	_____ m Note: 5m specified
2.17.3	Indicate the additional cable lengths available:	☐ Can be customized at the time of order ☐ Fixed lengths as indicated below _____ m _____ m _____ m _____ m

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2.18	**Programmable Controller Programming Software**	
2.18.1	Indicate the name and version number of the proposed programming software components.	_____ _____ _____ _____
2.18.2	Can user defined function blocks be created?	☐ Yes ☐ No Additional Details:_____
2.18.3	Are all function blocks and pre-engineered programs/libraries fully modifiable by the City? Base function locks such as ADD, or XOR functions are excluded.	☐ Yes ☐ No Additional Details:_____
2.18.4	Is a library of pre-built fuzzy logic control function blocks provided?	☐ Yes ☐ No
2.18.5	Are pre-built function blocks for the following included?	☐ Smith predictor ☐ Lead / Lag feed forward control.
2.18.6	Is a PID control loop auto-tune function included?	☐ Yes ☐ No
2.18.7	How is auto-tuning performed?	☐ Integrated into Programming Software ☐ Separate software tool provided ☐ Not supported
2.18.8	The programming software environment includes the following integrated version control features.	☐ Integrated features to allow programmers to visually see software logic changes made, compare versions, and restore specific modifications, without moving system files. ☐ No version control system is included. ☐ The following version control features are available: Details:_____
2.18.9	Is the capability provided to automatically log all modifications, downloads, system changes, etc to the controller into a secure audit log, which shall include the date, time, user, and a detailed description of the operation performed.	☐ Yes ☐ No Additional details:

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2.18.10	Describe the organization of each facility programmable controller logic files.	☐ A single program file is present for the entire facility. The controllers are presented in a hierarchical listing within the software. ☐ Each programmable controller has a dedicated program file. Other Details:
2.18.11	If a change is made to a pump control function block, how is this change propagated to all other pumps based upon this function block?	☐ The change is automatically propagated to all other pumps based upon the modified function blocks. Only a download to the controller is required. ☐ Each pump function block instance must be updated via a simple one/two click operation. ☐ Each pump function block instance must be manually replaced. Other Details:
2.18.12	Is controller emulation provided via a Windows application?	☐ Yes ☐ No
2.18.13	Is it possible to emulate multiple controllers on a single PC?	☐ Yes Up to _____ controllers. ☐ No Additional Details:_____
2.18.14	Can the controller emulator execute 100% of the hardware controller functionality?	☐ Yes ☐ No The following functions are not supported in the emulator:
2.18.15	Indicate the controller emulator capabilities for emulation.	☐ Network connected motor starters. ☐ Network connected variable frequency drives. ☐ Fieldbus connected instruments ☐ HART connected instruments ☐ AS-i connected instruments Additional details:

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3.0	**Process Simulator**	
3.1	**General**	
3.1.1	Information regarding proposed process simulator	☐ HMI Development / Runtime Package ☐ Same as main HMI package ☐ Different HMI package ☐ Specific simulator software Manufacturer: _____ Product Name: _____ Version: _____
3.1.2	Describe the scenario capabilities of the software.	☐ Not Provided ☐ Provided Describe:
3.1.3	Describe the scope of simulation that can be performed at a given time.	☐ Single Controller ☐ Multiple Controllers: Qty: _____ ☐ Entire Facility Additional Details:
3.1.4	Describe the proposed included licencing for the process simulator and its ability to meet the City requirements. Identify any restrictions.	

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4.0	**HMI System**	
4.1	**General**	
4.1.1	Manufacturer Name	
4.1.2	Years of experience in the design, manufacture of HMI systems	years
4.1.3	Provide a system architecture diagram of the proposed solution.	☐ Included in proposal.
4.1.4	Name and version of proposed HMI software	
4.1.5	Name and version of proposed HMI data server software	
4.1.6	Name and version of proposed terminal server software.	
4.1.7	Provide a system architecture diagram of the proposed solution.	☐ Included in proposal.
4.1.8	Do any proposed software runtime licences expire? (See E2.3)	☐ Yes (explain below) ☐ No
4.1.9	Proposed HMI client (Operator Workstation) architecture	☐ Thin clients utilizing terminal services (no HMI client software on the thin clients). ☐ Thick clients utilizing run-time HMI client software on the Operator Workstations computers.
4.1.10	Supported HMI server virtualization architectures	☐ All HMI Server components support running in a virtualized server system. The configuration has been fully tested. ☐ Some HMI Server components support running in a virtualized server system. Details follow. ☐ Running the HMI server system in a virtualized environment is not supported. Recommended server virtualization system: _____ Additional details: _____

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4.1.11	HMI Application Authoring and Deployment Features	☐ Changes to HMI application on primary server are automatically replicated to the secondary server. ☐ Included HMI application backup and restore utility. ☐ HMI tag import/export utility to/from CSV file or Excel spreadsheet. ☐ HMI tag simulator. ☐ HMI tag cross referencing system.
4.1.12	HMI Data Server / Data Access Protocol / Communication Capability	Protocol for Programmable Controller to HMI Communications _____ ☐ Communication is "change-based" where variables are only communicated to the HMI system upon change. ☐ For analog values, the deadband / exception threshold can be adjusted. ☐ Communication is polling based. ☐ Polling rates can be varied by controller or by any subset group of tags ☐ Polling rates can be varied by controller only. ☐ Only a single polling rate may be configured.
4.1.13	HMI Data Server / Data Access Protocol – Automatic Tag Activation Does the system support automatic activation and deactivation of data retrieval from controllers based upon active use? For example, does it support retrieving a set of tags only when those values are currently being displayed on the HMI?	☐ Yes ☐ Partial ☐ No Additional details: _____
4.1.14	OPC Client Support Provided	☐ OPC DA Version: _____ ☐ OPC XML DA Version: _____ ☐ OPC HDA (Historical Data Access) Version: _____ ☐ OPC A&E (Alarms and Events) Version: _____ ☐ OPC UA (Universal Architecture) Version: _____

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4.1.15	OPC Server Support Provided	☐ OPC DA Version: _____ ☐ OPC XML DA Version: _____ ☐ OPC HDA (Historical Data Access) Version: _____ ☐ OPC A&E (Alarms and Events) Version: _____ ☐ OPC UA (Universal Architecture) Version: _____
4.1.16	Graphic Display Feature Support	☐ Customizable tag update rate. ☐ Supports the use of parameters or tag placeholders in place of tag names. ☐ User resizing and rescaling of popup graphic displays in the runtime client. ☐ Graphic display rescaling to accommodate various client screen resolutions. ☐ May insert ActiveX and OLE objects onto displays. ☐ Direct referencing of programmable controller tags for display of tag value and object animation (no requirement for creating and using HMI tags).
4.1.17	Scripting Feature Support	☐ User-defined scripting using industry standard programming language such as JavaScript or BASIC. ☐ Scripts are always executed on the HMI server ☐ Scripts are always executed on the HMI client ☐ Scripts may be configured to execute on either the HMI server or the HMI client. Scripts may be run: ☐ Upon HMI application start-up. ☐ Upon HMI application shutdown. ☐ Upon user login to HMI. ☐ Upon user logout from HMI. ☐ Upon opening of a graphic display ☐ Upon closing of a graphic display ☐ At specific time of day. ☐ Upon change of tag value. ☐ On a touch action, such as pressing a button or clicking a display object. ☐ Upon acknowledgment of alarm. ☐ Upon switchover from primary to secondary HMI server, and vice versa. ☐ Upon switchover from primary to secondary data server, and vice versa.

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4.1.18	Trending Feature Support	☐ Integration of real-time data and historical data from the local facility historian server or central historian server.
4.1.19	Alarming Feature Support	☐ User-definable alarm priorities. Quantity of alarm priority levels available: _____ ☐ Configurable analog alarms: LL, L, H, HH ☐ Bad quality alarms – Native without creating a tag Available alarm notification methods: ☐ Open an alarm graphic display ☐ Set off an audible signal ☐ Send a message to a printer ☐ Send a message to a data source
4.1.20	Audit Trail Capabilities	☐ Operator login and logout. ☐ Operator alarm acknowledgement. ☐ Operator commands. ☐ Operator messages. ☐ System messages. ☐ Logging to facility historian.
4.1.21	Object Oriented Capabilities. Describe the capabilities of the HMI system to create and implement custom object data and graphic structures.	**Data** ☐ Custom data object classes may be created and stored in a central repository. ☐ Centralized data object classes may be utilized to create specific data object instances ☐ Modification of the central object data class will automatically be propagated to all object instances that were created. **Graphics** ☐ Custom graphic object classes may be created and stored in a central repository. ☐ Centralized graphic object classes may be utilized to create specific graphic object instances ☐ Modification of the central graphic object class will automatically be propagated to all graphic object instances that were created. **Integration** ☐ The data objects and graphic objects are inherently linked.
4.1.22	HMI Application Testing Capabilities	☐ Runtime testing of HMI application on development workstation without use of runtime client software / license. ☐ Ability to recall and trend data for a specific date and time.

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4.1.23	Proposed HMI Server Licences	Reference specifications for minimum requirements. NEWPCC: _____ points _____ displays SEWPCC: _____ points _____ displays WEWPCC: _____ points _____ displays Point-based licencing is based upon: ☐ Tags from external sources such as controllers only. ☐ All external tags, including alarm tags ☐ Other Other Details:
4.1.24	Expected system performance. Given number expected to be within 25% of final system performance.	Time from clicking on a new mimic display until the display is opened and all data points are fully populated. _____ ms Data update time from I/O to display. _____ ms Time from clicking on a faceplate popup icon until the faceplate is open and all data populated. _____ ms
4.2	**Portable HMI Client Software**	
4.2.1	Name and version of proposed HMI client software	
4.2.2	Supported Portable HMI Client Implementations	☐ Terminal services based portable HMI client. ☐ Terminal services based client is fully compatible with the same HMI application used for the desktop HMI. ☐ Web based portable HMI client. ☐ Web based client is fully compatible with same HMI application used for the desktop HMI.

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4.2.3	Can each Portable HMI Client connect to all three facilities?	☐ Yes. ☐ No, each Portable HMI Client must be tied to specific facility. ☐ Other: Additional Details:
4.2.4	Describe licensing system.	☐ Server based licence pool. Only active portable clients utilize a licence. ☐ Licences are tied to a specific portable device. ☐ Other: Additional Details:
4.2.5	Describe alarm notification capability.	
4.3	**HMI Web Server System**	
4.3.1	Name and version of proposed web server software	
4.3.2	Proposed architecture	☐ One web server per facility. ☐ Centralized web server. ☐ Other: Additional Details:
4.3.3	Describe proposed client licenses:	Licences floating for all three facilities: _____ NEWPCC Web Clients: _____ SEWPCC Web Clients: _____ WEWPCC Web Clients: _____ Additional Details:
4.3.4	Describe screen resolution scaling capabilities	

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4.3.5	Supported web browsers	☐ Internet Explorer ☐ Google Chrome ☐ Mobile Browsers ☐ Apple Safari ☐ Google Chrome Additional Details:
4.3.6	Describe automatic timeout and logoff of idle client devices to allow the licence to be returned to the pool.	☐ Default timeout and logoff capability is provided. Time: _____ ☐ Configurable timeout and logoff capability is provided. Additional Details:
4.4	**Touchscreen HMI - Hardware**	
4.4.1	Model Number of 305 mm (12”) colour touch display, without membrane keys, Ethernet communications, NEMA Type 4X	
4.4.2	Display Size and Resolution Availability (round to nearest listed sizes as required)	☐ 152 mm (6”) Resolution: _____ x _____ pixels ☐ 203 mm (8”) Resolution: _____ x _____ pixels ☐ 254 mm (10”) Resolution: _____ x _____ pixels ☐ 305 mm (12”) Resolution: _____ x _____ pixels ☐ 381 mm (15”) Resolution: _____ x _____ pixels
4.4.3	Display Colours	_____ colours
4.4.4	Available Communication Adapters	☐ Ethernet (Modbus TCP) ☐ Ethernet (Ethernet/IP) ☐ Ethernet (PROFINET) ☐ Ethernet (Other) ☐ PROFIBUS DP ☐ USB (for local configuration only)
4.4.5	User (application) Memory	_____ kB or _____ MB
4.4.6	External Memory (for storage of historical data)	☐ Secure Digital (SD) ☐ Compact Flash ☐ USB (solid state flash storage drive)
4.4.7	Enclosure Type Proposed (Front Panel of Installed Unit)	☐ NEMA Type 12 ☐ NEMA Type 4 ☐ NEMA Type 4X ☐ Other: _____

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4.4.8	Operating Temperature Range	_____ to _____ °C
4.4.9	Power Supply Nominal Input Voltage Availability	☐ 24 VDC ☐ 120 VAC, 60 Hz
4.4.10	Miscellaneous Features	☐ Dimmable Backlight ☐ Touch calibration ☐ Conformal coating ☐ Base feature ☐ Optional feature ☐ Other:
4.5	**Touchscreen HMI - Runtime Software and Programming Software Capabilities**	
4.5.1	Configuration Software	☐ Same software as proposed HMI system ☐ Dedicated touchscreen HMI Software
4.5.2	Available Document and Media Viewers	☐ Plain text document viewer ☐ PDF document viewer ☐ Word document viewer ☐ Excel document viewer
4.5.3	Alarming and Event Capabilities	☐ Active and historical alarm summary viewer ☐ Searchable by tag or description. ☐ Customizable alarm state colours ☐ Alarm groups, maximum quantity: _____ ☐ Event viewer
4.5.4	Application Conversion Capabilities	☐ Fully automatic application conversion from desktop HMI application (per E23) to touchscreen HMI application. ☐ Software is capable of performing majority of conversion from desktop HMI application (per E23) to touchscreen HMI application but requires some manual effort.
4.5.5	Scripting Capabilities	☐ Customizable scripting using industry standard language such as JavaScript or BASIC

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4.5.6	Data Logging and Trending Capabilities	☐ Periodic data logging with custom sampling interval ☐ Data logging on threshold change of value ☐ Configurable trend display object: ☐ Custom (fixed) horizontal and vertical axis scaling ☐ Automatic horizontal and vertical axis scaling ☐ Customizable pen colours ☐ Customizable background colour ☐ Customizable grid size and grid colour ☐ Runtime pen / tagname selection. ☐ Trend object zooming ☐ View specific date/time in trend object
4.5.7	Simulation Capabilities	☐ Touchscreen HMI programming software includes ability to simulate the HMI on the development PC.
4.5.8	Describe any proposed licencing limitations (i.e. tag count limits)	
5.0	**Historian System**	
5.1	**General**	
5.1.1	Historian System Architecture	☐ Proposed system architecture diagram provided ☐ Buffers on data servers to buffer data in the event of historian failure. Expected maximum duration of historian outage before buffer overflows and data loss occurs: _____ days ☐ A local historian is provided at each facility. ☐ A central historian is provided rather than a local historian at each facility (independent of any optional central archive historian).
5.1.2	Proposed Redundancy / Resiliency Capabilities	☐ Historian utilizes redundant data servers ☐ Redundant historian servers proposed. Other Details:
5.1.3	Describe how historical data is protected in the event of a historical data server failure or system upgrades. Describe any store and forward queues and expected duration prior to data loss.	

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5.1.4	Historian Data Logging Capabilities	☐ Time-based ☐ Event Based ☐ Delta / Deadband based for analog values ☐ Manual Entry ☐ Import via Excel / CSV file ☐ Manual Modification of Data Additional Details:
5.1.5	Supported Data Sources	☐ All proposed controllers ☐ HMI events such as operator actions ☐ OPC ☐ Other vendor PLCs Others:
5.1.6	OPC Client Support Provided	☐ OPC DA Version: _____ ☐ OPC XML DA Version: _____ ☐ OPC HDA (Historical Data Access) Version: _____ ☐ OPC A&E (Alarms and Events) Version: _____ ☐ OPC UA (Universal Architecture) Version: _____
5.1.7	OPC Server Support Provided	☐ OPC DA Version: _____ ☐ OPC XML DA Version: _____ ☐ OPC HDA (Historical Data Access) Version: _____ ☐ OPC A&E (Alarms and Events) Version: _____ ☐ OPC UA (Universal Architecture) Version: _____

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5.1.8	Calculation Capabilities	☐ Supports fully customizable calculations on any number of data points within the Historian package ☐ Supports basic calculations such as sum, totalize, addition, subtraction, etc. ☐ Calculations not supported Other Details:
5.1.9	Proposed Licences	Central Archive Server: _____ points NEWPCC _____ points SEWPCC: _____ points WEWPCC: _____ points Other Details:
5.1.10	Alarm and Event Logging	☐ Historian supports the collection and archiving of HMI alarm data, including alarm acknowledgments. ☐ Alarm logging does not require any "per alarm" configuration. ☐ Logging of alarms requires setting each individual alarm point to be logged. ☐ Historian supports the collection and archiving of HMI event data, including user logins, logouts, and commands.
5.1.11	Alarm / Event Licensing	☐ Logging of alarms / events to the historian does not require points in the licence point count. ☐ Logging of alarms / events requires licence point counts. Describe how specified licence requirements are met below:
5.1.12	Expected maximum continuous data storage rate (changes / second)	NEWPCC _____ points / second SEWPCC: _____ points / second WEWPCC: _____ points / second

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5.1.13	Describe data archival and retrieval capabilities, once the data is no longer required in the primary data store.	
5.2	**Historian Central Server Software**	
5.2.1	Capabilities	☐ Collection of data from the three (3) historian facility servers. ☐ Central server can filter and replicate only a portion of the data on the local historian servers. ☐ Central server must replicate the entire data set on the local historian servers. ☐ Central historian server not provided.
5.3	**Historian Client Software**	
5.3.1	Describe the proposed Historian client access licensing:	NEWPCC: ☐ Unlimited users ☐ Floating pool users: _____ ☐ Fixed named users: _____ SEWPCC: ☐ Unlimited users ☐ Floating pool users: _____ ☐ Fixed named users: _____ WEWPCC: ☐ Unlimited users ☐ Floating pool users: _____ ☐ Fixed named users: _____ Other Details:

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5.3.2	Provided historical data access tools.	☐ Microsoft Excel add-in to allow query and analysis of data with Excel. ☐ Microsoft Word add-in to allow query historical data and integrate into a document. ☐ Stand-alone graphical trending tool (not integrated with Excel) ☐ Stand-alone reporting tool. Other Details:
5.3.3	Describe any special data analysis tools provided.	
5.3.4	Historical data queries	☐ Intuitive interface requiring no SQL knowledge ☐ SQL ☐ Other Other Details:

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6.0	Low Voltage Intelligent Motor Control Centers	
6.1	**MCC General**	
6.1.1	Manufacturer Name	
6.1.2	Years of experience in the design, manufacture of MCCs	years
6.1.3	Years of experience in the design, manufacture of intelligent MCCs	years
6.1.4	Model Series of proposed intelligent MCC	
6.1.5	Proposed delivery timeframe for intelligent MCCs from date of order. Allow 15 days for shop drawing reviews.	Average: _____ calendar days Maximum: _____ calendar days
6.2	**MCC Type, Size, and Rating Availability**	
6.2.1	Available Enclosure Types	☐ NEMA 1 ☐ NEMA 1A ☐ NEMA 2 ☐ NEMA 3R ☐ NEMA 12 ☐ Other: _____
6.2.2	Available Structure Widths	☐ 508 mm (20”) ☐ 610 mm (24”) ☐ 762 mm (30”) ☐ 914 mm (36”) ☐ Other: _____
6.2.3	Available Structure Depths	☐ 381 mm (15”) ☐ 508 mm (20”) ☐ Other: _____
6.2.4	Available Back-to-Back Structure Depth	_____ mm _____ mm
6.2.5	Available Horizontal Bus Ratings	☐ 600 A ☐ 800 A ☐ 1200 A ☐ 1600 A ☐ 2000 A ☐ Other: _____
6.2.6	Available Vertical Bus Ratings	☐ 300 A ☐ 600 A ☐ Other: _____

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6.2.7	Available Bus Bracing (kA symmetric)	☐ 42 kA ☐ 65 kA ☐ 100 kA ☐ Other: _____
6.3	**MCC Main Breaker**	
6.3.8	Available interrupting ratings for a 1200A main breaker.	_____ kA _____ kA _____ kA _____ kA
6.3.9	Indicate electronic trip capabilities.	☐ L (Long Time) Pickup adjustible from: _____ to _____ ☐ S (Short Time) Pickup adjustible from: _____ to _____ Delay adjustible from: _____ to _____ ☐ I (Instantaneous) Pickup adjustible from: _____ to _____ Delay adjustible from: _____ to _____ ☐ G (Ground Fault) Pickup adjustible from: _____ to _____ Delay adjustible from: _____ to _____
6.4	**MCC Branch and Feeder Units**	
6.4.1	Standard Unit Heights – Moulded Case Circuit Breaker (for unit width of 508 mm (20"))	15 - 150A: _____ mm / alternately: _____ mm 175 - 250A: _____ mm / alternately: _____ mm 300 - 400A: _____ mm / alternately: _____ mm 450 - 600A: _____ mm / alternately: _____ mm
6.4.2	Available interrupting ratings with standard 15A moulded case breakers.	_____ kA _____ kA _____ kA _____ kA
6.4.3	Indicate optional electronic trip capabilities available.	15 - 150A: ☐ L ☐ S ☐ I ☐ G 175 - 250A: ☐ L ☐ S ☐ I ☐ G 300 - 400A: ☐ L ☐ S ☐ I ☐ G 450 - 600A: ☐ L ☐ S ☐ I ☐ G

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6.5	**Size**	
6.5.1	Dimensions of proposed MCC System 1	Height: _____ mm Width: _____ mm Depth: _____ mm
6.5.2	Standard Unit Heights – FVNR Circuit Breaker Motor Starters with Intelligent Module (for unit width of 508 mm (20"))	NEMA Size 1 Starter: _____ mm NEMA Size 2 Starter: _____ mm NEMA Size 3 Starter: _____ mm NEMA Size 4 Starter: _____ mm
6.6	**MCC Network**	
6.6.1	Proposed Network Communications	☐ Ethernet IP ☐ Ethernet - Modbus TCP ☐ PROFINET ☐ PROFINET to MCC, PROFIBUS DP within MCC ☐ Other: _____
6.6.2	Confirm that multiple controllers can communicate with a single MCC. Write control for each starter would be dedicated to a single programmable controller.	☐ Yes, multiple programmable controllers may communicate with a single MCC. ☐ No. Describe: _____
6.6.3	Indicate how a high level of availability is provided in the event of a fault.	Between the Programmable Controllers and MCC ☐ Dual Ethernet networks including two switches are provided with complete redundancy. ☐ A fault tolerant Ethernet ring network is provided ☐ Other: _____ Within the MCC to the individual devices (starters / VFDs) ☐ Dual Ethernet networks including two switches are provided with complete redundancy. ☐ Multiple switches are connected in a fault tolerant ring. All devices connect to a switch in a star fashion. The maximum number of devices per switch is : _____ (10 specified) ☐ All individual devices connect in a fault tolerant ring configuration. ☐ PROFIBUS PA/DP gateways are provided. The maximum number of devices per segment is: _____ (10 specified) ☐ Other: _____

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6.6.4	Network Cabling - Rating	☐ MCC network cabling is 600V rated. ☐ MCC network cabling is rated < 600V but is approved for 600V MCC applications due to the following: Describe: _____ ☐ MCC network cabling is rated < 600V and is not approved for use in 600V MCCs.
6.6.5	Network Cabling – Isolation Describe how the network cabling is isolated to prevent electric power transients and harmonics from being imposed on the network communications.	☐ Segregation (Describe below) ☐ Shielding (Describe below) ☐ Other (Describe below) Describe:
6.6.6	Network Switch Power Supply	☐ Network switch power supply has dual 24 VDC power inputs, connected to independent power supplies. ☐ Network switch power supply has a single 24 VDC power input Additional details:
6.7	**MCC Surge Protective Device**	
6.7.1	Rating Availability	☐ 60 kA per phase ☐ 100 kA per phase ☐ 200 kA per phase ☐ 250 kA per phase ☐ 300 kA per phase ☐ Other: _____
6.7.2	Included Standard Features	☐ Status light for each phase – indicates whether each phase is operational / damaged. ☐ Electrical Noise Filter: Noise Attenuation 10 kHz – 100 MHz : _____ dB ☐ MOVs are thermally protected ☐ Audible alarm ☐ switchable on / off ☐ Dry contact for monitoring ☐ Surge counter with door mounted display

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6.8	**MCC Power Meter**	
6.8.1	Metering Capabilities	☐ Line and/or phase voltages ☐ Line currents ☐ Average current ☐ Current phase imbalance ☐ Frequency ☐ Power (real and reactive) ☐ Power factor ☐ Energy (real and reactive) ☐ Harmonics – Voltage to _____ harmonic ☐ Harmonics – Current to _____ harmonic ☐ Other: _____
6.8.2	Accuracy	Volts: _____ % Amps: _____ % Power: _____ %
6.8.3	Network Connectivity	☐ Ethernet IP ☐ Modbus TCP ☐ Modbus TCP via Modbus RTU ☐ PROFINET ☐ PROFINET via PROFIBUS DP ☐ Other: _____

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6.9	**Intelligent Overloads / Motor Protection Relays**	
6.9.1	Power Supply Voltage Compatibility	☐ 24 VDC ☐ 120 VAC
6.9.2	Complete model number of 120VAC powered module	
6.9.3	Metering Capabilities	☐ Line and/or phase voltages ☐ Line currents ☐ Ground current ☐ Average current ☐ Current phase imbalance ☐ Frequency ☐ Power (real and reactive) ☐ Power factor ☐ Energy (real and reactive) ☐ Motor temperature sensor ☐ Other: _____
6.9.4	Device Statistics capabilities	☐ Protection fault counts ☐ Protection warning counts ☐ Diagnostic fault counts ☐ Fault history ☐ Other: _____
6.9.5	Motor Statistics capabilities	☐ Cumulative run time ☐ Motor starts per hour ☐ Last start max current ☐ Last start time ☐ Other: _____
6.9.6	Diagnostics capabilities	☐ Communication loss ☐ Controller internal temperature ☐ Internal watchdog ☐ Temperature sensor connection ☐ Current connections ☐ Other: _____

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6.9.7	Available Protection Functions	☐ Thermal overload – definite ☐ Thermal overload – inverse thermal ☐ Current phase imbalance ☐ Current phase loss ☐ Current phase reversal ☐ Overcurrent ☐ Undercurrent ☐ Ground current ☐ Undervoltage ☐ Overvoltage ☐ Voltage phase loss ☐ Voltage phase reversal ☐ Under power ☐ Over power ☐ Under power factor ☐ Over power factor ☐ Long start ☐ Motor temperature ☐ Rapid cycle lockout ☐ Jam ☐ Stop on communication loss ☐ Other: _____
6.9.8	Motor Temp Sensor Compatibility	☐ Thermistor ☐ PTC binary ☐ PTC analog ☐ NTC analog ☐ RTD ☐ Ni100 analog ☐ Ni1000 analog ☐ Pt100 analog ☐ Other: _____
6.9.9	User Assignable Physical I/O – Base Module (for 120 VAC powered module)	☐ Discrete Inputs – 120VAC Max quantity: _____ ☐ Discrete inputs – 24 VDC Max quantity: _____ ☐ Discrete Outputs – Form A dry contact Max quantity: _____

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6.9.10	I/O Expandability	☐ Discrete Inputs – 120VAC Max quantity: _____ ☐ Discrete inputs – 24 VDC Max quantity: _____ ☐ Discrete Outputs – Form A dry contact Max quantity: _____
6.9.11	Network Control Protocol Support	☐ Ethernet/IP ☐ Modbus TCP ☐ PROFIBUS/DP ☐ PROFIBUS/DP with PROFINET to control system. ☐ PROFINET ☐ WWW (built-in web pages) ☐ Other: _____
6.9.12	Network Interface Speed	Communication between programmable controller and MCC: ☐ 10 Mbit ☐ 100 Mbit ☐ 1000 Mbit ☐ Other: _____ Communication to each individual intelligent starter: ☐ 10 Mbit ☐ 100 Mbit ☐ 1000 Mbit ☐ Other: _____
6.9.13	Networking Features	☐ DHCP Support ☐ Network Time Protocol Support ☐ Automatic device reconfiguration upon replacement
6.9.14	Local HMI for Configuration and Maintenance	☐ Standard ☐ Optional
6.9.15	Other	☐ PC-based Windows compatible programming and configuration software
6.10	**MCC Internal Network Redundancy**	
6.10.1	Describe the redundancy features of the internal network within the proposed MCC	

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6.11	**Arc Flash / Arc Resistant Features**	
6.11.1	Identify the standard arc resistant features of the MCC, available in all MCCs, and included in the price in Form B.	
6.11.2	Is an optional maintenance mode switch available to modify the main breaker protection settings when maintenance activities are taking place?	☐ Yes, identify main breaker model number/series below. _____ ☐ No
6.11.3	Identify the optional arc resistant features available in the standard MCC offering by the manufacturer. Custom offerings are not to be included.	☐ Arc-flash resistant construction, tested in accordance with ANSI C37.20.7. ☐ Entire MCC structure is arc resistant for faults anywhere within the MCC. ☐ Entire MCC structure is arc resistant for faults anywhere within the MCC, with the exception on the line side of the main breaker. ☐ The MCC structure is only ar resistant for faults downstream of the branch breakers. ☐ Reinforced door latches / fasteners. ☐ Door reinforcements ☐ Internal Venting ☐ Roof venting ☐ Manual Bus Shutters ☐ Automatic Bus Shutters ☐ Closed door racking. ☐ Maintenance switch to provide 2nd set of main breaker protection settings ☐ Insulated horizontal bus ☐ Insulated vertical bus ☐ Through door voltage indicators ☐ Infrared Inspection Ports ☐ Other: _____ _____ _____ Maximum ratings of arc resistant MCC: Bus Rating:_____ A SCCR Rating:_____ kA Arcing Duration:_____ ms

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6.12	**Custom Capabilities**	
6.12.4	Identify and describe capabilities to include custom starters/controls into the MCC line-up.	☐ Can integrate custom engineered solutions in the factory. ☐ Can supply empty structures and parts for integration by an independent panel shop. ☐ Other: _____ Describe: _____
7.0	**Variable Frequency Drives**	
7.1	**Environmental Characteristics**	
7.1.1	Operating temperature range	_____ to _____ °C
7.1.2	Conformal coating on circuit boards	☐ Standard ☐ Optional
7.1.3	Available drive enclosure types	☐ NEMA Type 1 ☐ NEMA Type 4 ☐ NEMA Type 4X ☐ NEMA Type 12 ☐ Other: _____
7.2	**Features**	
7.2.1	Operation Modes	☐ V/F (mandatory) ☐ Sensorless Vector (mandatory) ☐ Other: _____
7.2.2	Protective Functions	☐ VFD internal failure ☐ Ground fault internal to VFD ☐ Ground fault on VFD output ☐ VFD output overcurrent ☐ VFD output current unbalance ☐ DC bus under/overvoltage ☐ Input supply over or under voltage ☐ Input supply voltage unbalance ☐ DC link fault ☐ 5% frequency deviation from setpoint ☐ Loss of control signal ☐ Control electronics fault ☐ VFD over temperature ☐ Motor over temperature ☐ Motor stalled ☐ Loss of load (underload) ☐ Other: _____

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7.2.3	Control Functions	☐ 2-wire and 3-wire control ☐ Constant speed selection via digital input(s) ☐ Selectable accel/decel ramp type: linear and s-curve ☐ Selectable profile(s) via discrete input(s) ☐ Internal PID controller ☐ Adjustable PWM (switching) frequency ☐ Other: _____
7.2.4	Maintenance	☐ Field-replaceable fans without removal of drive from enclosure. ☐ Drive parameters can be saved to keypad and downloaded to replacement drive from keypad. ☐ The user can reset all internal fault alarms, including fan failure. ☐ The user has accesss to all drive parameters.
7.2.5	Drive Configuration Software	Form of Software: ☐ The drive configuration software is an independent software package: Name: _____ ☐ The drive configuration software is integrated into the programmable controller programming tool. Capabilities: ☐ Drive parameters can be developed offline in the drive configuration software, and saved to / loaded from a file. ☐ The drive configuration software communicates over the Ethernet network to the VFD. Licences: ☐ A minimum of ten copies of the software are included in the proposal. ☐ There is no cost to the software and it may be installed on an unlimited number of computers.
7.3	**I/O**	
7.3.1	Discrete Inputs	☐ 24 VDC, Quantity: _____ ☐ 120 VAC, Quantity: _____
7.3.2	Discrete Outputs	☐ Dry Contact, Quantity: _____ Contact rating: _____ at 24 VDC _____ at 120 VAC ☐ 24 VDC, Quantity: _____ ☐ 120 VAC, Quantity: _____
7.3.3	Analog Inputs	☐ 0 to 10 VDC, Quantity: _____ ☐ 4 to 20 mA, Quantity: _____

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7.3.4	Analog Outputs	☐ 0 to 10 VDC, Quantity: _____ ☐ 4 to 20 mA, Quantity: _____
7.4	**Display**	
7.4.1	Describe the keypad display	☐ Backlit LCD ☐ Other:_____ Lines of text: _____ Other details:
7.5	**Communications**	
7.5.1	Proposed fieldbus to be included with all drives for monitoring and control.	☐ Ethernet/IP ☐ PROFINET ☐ PROFIBUS ☐ Modbus TCP
7.5.2	Support for other protocols	☐ Ethernet/IP ☐ Native. ☐ With optional communications adapter offered by manufacturer. ☐ PROFINET ☐ Native. ☐ With optional communications adapter offered by manufacturer. ☐ PROFIBUS ☐ Native. ☐ With optional communications adapter offered by manufacturer. ☐ Modbus TCP ☐ Native. ☐ With optional communications adapter offered by manufacturer.
7.5.3	Network Switch	☐ Integrated Ethernet Network Switch ☐ Compatible with fault tolerant ring.
7.5.4	Supported Features	☐ Network time synchronization ☐ Redundant communication adapters

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7.6	**Device Replacement**	
7.6.1	Identify requirements to configure a replaced drive on the network.	☐ Manual configuration of the drive parameters is required. ☐ Set an address switch and the remainder of the configuration is automatically downloaded to the new drive. ☐ The configuration is stored in the keypad and will automatically download to the new drive. ☐ Just plug in, and the device configures itself via the following: _____ ☐ Other: _____ Other details:
7.7	**7.5 kW (10 hp) drive**	
7.7.1	Complete model number of 7.5 kW (10 hp) VFD proposed.	
7.7.2	Short-Circuit Current Rating (SCCR)	Without fusing: _____ kA at 600 V With fusing: _____ kA at 600 V
7.7.3	Efficiency	Full load: _____ % 75% load: _____ % 50% load: _____ % 25% load: _____ %
7.7.4	Overload capability (fan / pump application)	110 % for _____ sec 150 % for _____ sec
7.8	**37 kW (50 hp) drive**	
7.8.1	Complete model number of 37 kW (50 hp) VFD proposed.	

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7.8.2	Short-Circuit Current Rating (SCCR)	Without fusing: _____ kA at 600 V With fusing: _____ kA at 600 V
7.8.3	Minimum input displacement power factor at all speeds and loads	
7.8.4	Efficiency	Full load: _____ % 75% load: _____ % 50% load: _____ % 25% load: _____ %
7.8.5	Overload capability (fan / pump application)	110 % for _____ sec 150 % for _____ sec
7.8.6	For the proposed 37 kW (50 HP) drive, indicate the current input harmonics.	☐ Current input harmonics are typical for a six-pulse drive. ☐ Current input harmonics are better than a typical six-pulse drive. This is due to the following technology the drive has: _____ ☐ Current input harmonics are provided in a separate document: _____ Other details:
7.8.7	Identify standard VFD options available to reduce the current input harmonics of a stand-alone 37 kW (50 HP) drive.	☐ 12-pulse drive ☐ 18-pulse drive ☐ 24-pulse drive ☐ Active front end ☐ Input filter: (Identify manufacturer of input filter) _____ Other details:

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7.8.8	Identify standard VFD options available to reduce the current input harmonics of a MCC-mounted 37 kW (50 HP) drive, without custom engineering.	☐ 12-pulse drive ☐ 18-pulse drive ☐ 24-pulse drive ☐ Active front end ☐ Input filter: (Identify manufacturer of input filter) _____ Other details:
8.0	**Optional Software Systems**	
8.1	**Version Management Software**	
8.1.1	Is version management software being proposed as an option? If so, provide product name.	☐ Yes ☐ No ☐ Integrated into Programmable Controller and HMI Programming Software – No additional cost Product Name: _____
8.1.2	Provide a comprehensive description of the product features.	*Reference other documents as applicable.*
8.1.3	Identify how the version management software integrates with the proposed base products.	*Reference other documents as applicable.*

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8.2	**Information Server**	
8.2.1	Is information server software being proposed as an option? If so, provide product name.	☐ Yes ☐ No ☐ Integrated into proposed Historian offering – No additional cost Product Name: _____
8.2.2	Identify the proposed server configuration.	☐ One central server is proposed that will serve all three facilities. ☐ Three servers are proposed, one for each facility. Other details:
8.2.3	Provide a comprehensive description of the product features.	*Reference other documents as applicable.*
8.2.4	Identify how the information server software integrates with the proposed base products.	*Reference other documents as applicable.*

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8.3	**Metrics Server Software**	
8.3.1	Is metrics server software being proposed as an option? If so, provide product name.	☐ Yes ☐ No ☐ Integrated into proposed Historian offering – No additional cost ☐ Integrated into Optional Information Server Software – No additional cost Product Name: _____
8.3.2	Identify the proposed server configuration.	☐ One central server is proposed that will serve all three facilities. ☐ Three servers are proposed, one for each facility. Other details:
8.3.3	Provide a comprehensive description of the product features.	*Reference other documents as applicable.*
8.3.4	Identify how the metrics server software integrates with the proposed base products.	*Reference other documents as applicable.*

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8.4	**Enterprise Database Integration Software**	
8.4.1	Is enterprise database integration software being proposed as an option? If so, provide product name.	☐ Yes ☐ No ☐ Integrated into base proposed products. Product Name: _____
8.4.2	Identify the proposed server configuration.	☐ One central server is proposed that will serve all three facilities. ☐ Three servers are proposed, one for each facility. Other details:
8.4.3	Provide a comprehensive description of the product features.	*Reference other documents as applicable.*
8.4.4	Identify how the enterprise database integration software integrates with the proposed base products.	*Reference other documents as applicable.*
8.4.5	Identify the desired City's Computerized Work Management System features that will be supported by the proposed software.	☐ Abnormal events, such as an alarm or a high process level, can be configured to automatically generate a work order with the appropriate parameters. ☐ Utilize equipment runtimes to automatically generate work orders with the appropriate parameters. ☐ Manually initiate a work order from the HMI. (lower priority) ☐ View work orders for specific equipment from the HMI. (lower priority) Other details:

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8.4.6	Identify any previous experience implementing the desired Computerized Work Management System Features utilizing the proposed software.	Number of projects: _____ **Project 1** Name: _____ Client: _____ Description: _____ **Project 2** Name: _____ Client: _____ Description: _____

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8.5	**Other Packages**	
8.5.1	Identify other software packages offered that may be of interest to the City and integrate with the proposed products. Do not include the price of these products in Form B, unless proposed as part of the base package.	Name: _____ Description: _____ _____ Name: _____ Description: _____ _____ Name: _____ Description: _____ _____ Name: _____ Description: _____ _____ *Provide product datasheets for all indicated products.*
9.0	**Integration Capabilities**	
9.1	**Software Engineering Tools**	
9.1.1	Identify the complete set of software engineering tools proposed. The list should be comprehensive of all products within this RFP.	
9.1.2	Describe the high-level integration capabilities between the indicated software engineering tools.	

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9.2	**Programmable Controller and HMI Integration**	
9.2.1	Describe the integration of the programmable controller and HMI tag database.	☐ The controller and HMI utilize a common database. It is not possible for them to be out of sync. ☐ The HMI tag database is automatically updated and synchronized with the controller database. ☐ Database export / import tools are provided to synchronize the databases. Other Details:
9.2.2	Are object structures (user defined data types) in the programmable controller common to, and synchronized with the HMI? Describe:	*Reference other documents as applicable:*
9.2.3	Describe the integrated system's ability to provide a central repository of pre-configured and customized library of objects.	☐ A central repository of objects is provided on a server. ☐ All programming workstation software packages communicate continuously with the server and any new function blocks or modifications made are inherently made on the central server and accessible to all programming workstations. ☐ All programming workstation software packages provide the ability to transfer function blocks to and from the central server, integrated within the programming software packages. ☐ A central repository of objects can be configured via copying function blocks between the specific project and a library project. ☐ A central repository of objects is not available. Other Details: *Reference other documents as applicable:*
9.2.4	Describe the proposed systems ability to share a central repository between the three wastewater treatment facilities.	

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9.2.5	Describe the integration of the alarming system.	The alarming system is managed by: ☐ Alarms are managed by the programmable controller ☐ Alarm state and acknowledgement is stored in the controller. ☐ Date / time stamping is performed in the controller. ☐ Alarms are managed by the HMI system ☐ Date / time stamping is performed in the controller. ☐ Date / time stamping is performed at the HMI. Individual alarms must be configured in: ☐ Programmable controller ☐ HMI Other details:
9.2.6	In Service Flag Is an integrated feature provided (without additional coding) to flag whether each individual piece of equipment is in service? This would primarily be utilized during commissioning, but could also be utilized during maintenance.	☐ Yes, an integrated flag is provided. It is called a: _____ ☐ The flag disables the equipment when not in service. ☐ The flag is visually displayed on the graphics via shading or similar means. ☐ The identified in-service feature can be provided through customized coding. ☐ The feature is not available.
9.2.7	Time Synchronization Features	☐ Time synchronization between all controllers and the HMI is automatically performed without coding. ☐ Time synchronization between all controllers and the HMI may be performed with minimal coding. ☐ A limited time synchronization feature set is available. Additional details:

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9.3	**Process Library**	
9.3.1	Identify functions provided within the process library. Only check the faceplate field if the faceplate communicates with the programmable controller function block via a pre-configured interface, that requires at maximum a single link to the function block.	Programmable Controller Function Block / HMI Faceplate Standard PID Controller ☐ ☐ Cascade PID Controller ☐ ☐ Ratio Controller ☐ ☐ Controller with Split Range ☐ ☐ Manual Loader ☐ ☐ Analog Value Monitoring With alarm signal ☐ ☐ Motor Start / Stop With interlocks ☐ ☐ Two speed motor control ☐ ☐ Reversing motor control ☐ ☐ Variable speed motor control ☐ ☐ On/Off Valve Control with feedback monitoring ☐ ☐ Modulating Valve Control With feedback monitoring ☐ ☐ Motorized valve control With feedback monitoring ☐ ☐ Other: Additional Details: *Reference other documents as applicable.*
9.3.2	Are the colors and shapes of the graphic symbols in the process library completely customizable?	☐ Yes ☐ Partially ☐ No Additional Details:

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9.3.3	Describe the included graphic library's compliance with the shades-of-gray operational philosophy, as discussed in the ASM Consortium Guidelines.	☐ Yes, the library completely follows the shades-of-gray concept. ☐ Yes, the library is fully customizable to meet the shades-of-gray concept. ☐ The library is partially compliant. ☐ The library is not compliant. Additional Details:
9.4	**Historian Integration**	
9.4.1	How are historian tags configured?	☐ From the HMI configuration software. ☐ From the Historian configuration software, with a direct link to the HMI tag database. ☐ From the Historian configuration software, with a separate tag database, with export / import capabilities. Additional Details:
9.4.2	Describe historical data integration into the HMI.	☐ Historical data may be incorporated seamlessly into the historical trend displays on the HMI. ☐ Historical data reports may be incorporated seamlessly into the HMI. ☐ Historical data may be queried from the local historian. ☐ Historical data may be queried from the central historian. Additional Details:

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9.4.3	Describe the proposed system capabilities regarding integration of laboratory analysis data into the historian.	☐ The system allows for automated data entry into the system via the following interface: _____ ☐ Laboratory analysis data may be manually entered into the historian. ☐ Other (describe below) Additional Details:
9.5	**Intelligent Field Device Integration**	
9.5.1	Intelligent Field Device Management Software	Name of software tool providing intelligent device management: _____ Is the same tool utilized for motor starters, VFDs, and fieldbus instruments? ☐ Yes ☐ No Is the same tool utilized for all supported protocols? ☐ PROFIBUS ☐ Foundation Fieldbus ☐ HART ☐ Modbus TCP Other Details:
9.5.2	Intelligent Field Device Management Software - EDDL Support	Are EDDL (Electronic Device Description Language) device files supported? ☐ Yes ☐ No Other Details:

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9.5.3	Intelligent Field Device Management Software – Device Diagnostics	The software tool can provide the following diagnostic states: ☐ Communication Fault ☐ Configuration Error ☐ Maintenance Required ☐ Maintenance Recommended ☐ Process Error The software tool can provide an measurable indication of the communication signal waveform distortion to allow for predictive maintenance of a deteriorating network. ☐ Measurement of network distortion Other Details:
9.5.4	Can new intelligent field devices be added to the fieldbus network without taking the network out of service?	☐ Yes, for all controllers (redundant or not). ☐ Yes, for all redundant controllers. ☐ No, the fieldbus network must be briefly taken out of service.
9.5.5	Intelligent Motor Starter / VFD Diagnostics Describe in detail how a maintenance technician would troubleshoot a motor starter / VFD remotely. Identify software tools utilized and the steps required.	*Reference other documents as applicable:*
9.5.6	Intelligent Instrument Diagnostics Describe in detail how a maintenance technician would troubleshoot a fieldbus instrument remotely. Identify software tools utilized and the steps required.	*Reference other documents as applicable:*

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9.5.7	VFD Integration Describe in detail the pre-built integration capabilities to minimize the manual configuration of VFDs, from the VFD, through the controller, and to the HMI.	☐ A pre-built comprehensive programmable controller function block is provided to manage all VFD functions including: ☐ VFD communications ☐ control ☐ monitoring ☐ diagnostics and fault capability ☐ process interlocking capability ☐ A pre-built HMI faceplate is provided to link to the controller VFD function block. The faceplate provides: ☐ control ☐ monitoring ☐ diagnostics and fault display capability ☐ process interlocking display ☐ Only one link between the HMI faceplate and controller function block must be established. Provide additional details and reference other documents as applicable.
9.5.8	Intelligent Motor Starter Integration Describe in detail the pre-built integration capabilities to minimize the manual configuration of intelligent motor starters, from the motor starter, through the controller, and to the HMI.	☐ A pre-built comprehensive programmable controller function block is provided to manage all motor starter functions including: ☐ starter communications ☐ control ☐ monitoring ☐ diagnostics and fault capability ☐ process interlocking capability ☐ A pre-built HMI faceplate is provided to link to the controller starter function block. The faceplate provides: ☐ control ☐ monitoring ☐ diagnostics and fault display capability ☐ process interlocking display ☐ Only one link between the starter faceplate and controller function block must be established. Provide additional details and reference other documents as applicable.

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9.6	**Ethernet Switch Integration**	
9.6.9	Describe the Ethernet switch diagnostic features available natively in the control system, with the proposed products.	☐ All Ethernet switch diagnostic data is fully provided to the control system, as described below. ☐ Basic Ethernet switch operation status is provided to the control system, as described below. ☐ No Ethernet switch / control system integration is provided. Describe:

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9.7	**User Security**	
9.7.1	Describe the integrated user security capability features of the proposed complete integrated system.	Programmable Controller ☐ The programmable controller and HMI/Historian systems have an integrated authentication system ☐ The programmable controller and HMI/Historian systems have a separate authentication system HMI / Historian / Web Server ☐ The HMI system, Historian system, and web server all have an integrated authentication system. ☐ User authentication is integrated with Microsoft Windows. ☐ User authentication via Microsoft Active Directory. ☐ Other (Describe below) Inter-Facility – If a user at the SEWPCC wishes to log on to the WEWPCC HMI, will they be utilizing the same user account at the SEWPCC and the WEWPCC? If a change is made to the user account, can it be made in one place only? ☐ Yes, the security / user authentication system is shared / common between the three facilities. ☐ A communication failure between the facilities will not affect user authentication. ☐ A communication failure between the facilities will affect user authentication. ☐ User authentication is set individually for each facility. Provide additional details and reference other documents as applicable.

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9.8	**Enterprise System Integration**	
9.8.1	Identify enterprise system integration capabilities.	*Reference other documents as applicable:*
9.8.2	Describe support for ISA S95 standards, as well as included and optional software modules to allow for ISA S95 compliant integration. Ensure any components not included in the proposal are clearly identified.	*Reference other documents as applicable:*
10.0	**Service and Support**	
10.1	**General**	
10.1.1	Proposed Bidder account manager:	Name: _____ Responsibilities: _____ Relevant Experience: _____ Certifications: _____
10.1.2	Other personnel	Name: _____ Responsibilities: _____ Relevant Experience: _____ Certifications: _____
10.1.3	Hours of business	
10.1.4	Describe Bidder's relationship with the manufacturer.	
10.1.5	Describe Bidders' local support capabilities. Does the Bidder employ factory trained service personnel? Where are they located?	
10.1.6	Describe manufacturer's local support capabilities. Does the manufacturer employ factory trained service personnel? Where are they located?	

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10.1.7	In the event that telephone / e-mail technical support is required, who will provide the first level of support?	☐ Bidder ☐ Manufacturer ☐ Other Other: _____
10.1.8	Describe Bidder's local telephone / e-mail support capabilities. How many trained personnel? Describe years of experience.	
10.1.9	In the event that field service is required, who will provide the first level of support?	☐ Bidder ☐ Manufacturer ☐ Other Other: _____
10.2	**Design Assistance**	
10.2.10	Confirm that design assistance will be available as per E8. *Note: Proposals without design assistance services may be deemed non-responsive.*	☐ Yes ☐ No

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10.2.11	Identify any other design assistance services proposed, in addition to those specified in E8.	
10.3	**Systems Integrators**	
10.3.1	Identify the manufacturer's requirements for systems integrators.	☐ Any systems integrator may integrate the manufacturer's products. No restrictions exist ☐ A certification program is in place to certify systems integrators who have demonstrated capabilities with the manufacturer's products. ☐ Any systems integrator may integrate the manufacturer's products. Some restrictions exist. Describe below. ☐ Only approved systems integrators may integrate the manufacturer's products. Additional Details:
10.3.2	Identify local systems integrators approved to integrate the proposed products.	Name: _____ Certification: _____ Years of experience with manufacture's products: _____ City: _____ Name: _____ Certification: _____ Years of experience with manufacture's products: _____ City: _____ Name: _____ Certification: _____ Years of experience with manufacture's products: _____ City: _____ Name: _____ Certification: _____ Years of experience with manufacture's products: _____ City: _____ ☐ Additional approved local systems integrators are indicated in attached documentation.

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10.4	**Support Services Without Service and Support Agreements**	
10.4.1	Is manufacturer telephone technical support available without a service / support agreement?	☐ Yes – complete technical support ☐ Limited technical support (complete details below) ☐ Not available. Details: _____
10.4.2	Availability of telephone technical support, without service and support agreement?	☐ 24/7 ☐ Other (complete below) Other: _____
10.4.3	Are the indicated manufacturer website technical resources available without a service / support agreement?	**Programmable Controllers:** ☐ Application Notes ☐ Knowledgebase (Complete access) ☐ Manuals / Datasheets ☐ Sample architectures ☐ Sample programs ☐ Tech Notes ☐ User forums **HMI / Historian:** ☐ Application Notes ☐ Knowledgebase (Complete access) ☐ Manuals / Datasheets ☐ Sample architectures ☐ Sample programs ☐ Tech Notes ☐ User forums **Motor Control (MCC / VFDs):** ☐ Application Notes ☐ Knowledgebase (Complete access) ☐ Manuals / Datasheets ☐ Sample architectures ☐ Sample programs ☐ Tech Notes ☐ User forums Details: _____
10.4.4	Are programmable controller firmware updates available without a service / support agreement?	☐ Yes ☐ No Details: _____

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10.5	**Programmable Controller Annual Support Service (With Service and Support Agreement)**	
10.5.1	Telephone Technical Support (with service and support agreement)	☐ Local number provided ☐ Toll-Free number provided ☐ Long-Distance number provided Technical Support Availability: ☐ Monday – Friday Hours:_____ to_____ CST ☐ Saturday Hours:_____ to_____ CST ☐ Sunday Hours:_____ to_____ CST Service Provided By: ☐ Local Winnipeg distributor personnel ☐ Local Winnipeg manufacturer personnel ☐ Remote distributor personnel ☐ Remote manufacturer personnel Call answered by: ☐ Machine - Voicemail ☐ Machine with transfer to technical support personnel ☐ Operator with transfer to technical support personnel ☐ Technical support personnel ☐ Other: _____ Other Relevant Information: _____ _____
10.5.2	Describe e-mail technical support policies and capabilities. Describe personnel who are providing the service.	

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10.5.3	Describe self-serve technical support services and capabilities. Provision of a web address and user id (if required) is encouraged.	
10.5.4	Describe other services included.	
10.5.5	Are there any limits on the number of users (City personnel) who have access to the Programmable Controller Hardware Technical Support Services?	☐ Technical support services may be accessed by an unlimited number of users. (User Ids not required or sharing is permitted). ☐ Technical support services are available to _____ users. *Note: A minimum of ten users is a mandatory requirement.*

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10.6	**HMI and Historian Annual Support Service (With Service and Support Agreement)**	
10.6.1	Telephone Technical Support (with service and support agreement)	☐ Local number provided ☐ Toll-Free number provided ☐ Long-Distance number provided Technical Support Availability: ☐ Monday – Friday Hours:_____ to_____ CST ☐ Saturday Hours:_____ to_____ CST ☐ Sunday Hours:_____ to_____ CST Service Provided By: ☐ Local Winnipeg distributor personnel ☐ Local Winnipeg manufacturer personnel ☐ Remote distributor personnel ☐ Remote manufacturer personnel Call answered by: ☐ Machine - Voicemail ☐ Machine with transfer to technical support personnel ☐ Operator with transfer to technical support personnel ☐ Technical support personnel ☐ Other: _____ Other Relevant Information: _____ _____
10.6.2	Describe e-mail technical support policies and capabilities. Describe personnel who are providing the service.	

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10.6.3	Describe self-serve technical support services and capabilities. Provision of a web address and user id (if required) is encouraged.	
10.6.4	Describe other services included.	
10.6.5	Are there any limits on the number of users (City personnel) who have access to the Programmable Controller Hardware Technical Support Services?	☐ Technical support services may be accessed by an unlimited number of users. (User Ids not required or sharing is permitted). ☐ Technical support services are available to _____ users. *Note: A minimum of ten users is a mandatory requirement.*

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10.7	**Motor Control Annual Support Service (With Service and Support Agreement)**	
10.7.1	Telephone Technical Support (with service and support agreement)	☐ Local number provided ☐ Toll-Free number provided ☐ Long-Distance number provided Technical Support Availability: ☐ Monday – Friday Hours:_____ to_____ CST ☐ Saturday Hours:_____ to_____ CST ☐ Sunday Hours:_____ to_____ CST Service Provided By: ☐ Local Winnipeg distributor personnel ☐ Local Winnipeg manufacturer personnel ☐ Remote distributor personnel ☐ Remote manufacturer personnel Call answered by: ☐ Machine - Voicemail ☐ Machine with transfer to technical support personnel ☐ Operator with transfer to technical support personnel ☐ Technical support personnel ☐ Other: _____ Other Relevant Information: _____ _____
10.7.2	Describe e-mail technical support policies and capabilities. Describe personnel who are providing the service.	

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10.7.3	Describe self-serve technical support services and capabilities. Provision of a web address and user id (if required) is encouraged.	
10.7.4	Describe other services included.	
10.7.5	Are there any limits on the number of users (City personnel) who have access to the Motor Control Technical Support Services?	☐ Technical support services may be accessed by an unlimited number of users. (User Ids not required or sharing is permitted). ☐ Technical support services are available to _____ users. *Note: A minimum of 20 users is a mandatory requirement.*

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10.8	**Spare Parts**	
10.8.1	Describe the manufacturer and wholesaler capabilities with respect to spare parts and rapid delivery upon placement of a rush order.	*Reference additional documents as required.*
10.9	**Additional Training**	
10.9.1	PLC System Training - Describe the manufacturer's additional training courses offered, along with cost and typical locations.	*Reference additional documents, such as a course catalogue, as required.*
10.9.2	HMI System Training - Describe the manufacturer's additional training courses offered, along with cost and typical locations.	*Reference additional documents, such as a course catalogue, as required.*
10.9.3	MCC System Training - Describe the manufacturer's additional training courses offered, along with cost and typical locations.	*Reference additional documents, such as a course catalogue, as required.*

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10.9.4	VFD Training - Describe the manufacturer's additional training courses offered, along with cost and typical locations.	*Reference additional documents, such as a course catalogue, as required.*
10.10	**Delivery**	
10.10.5	Proposed delivery timeframe for programmable controller system, HMI, and historian components from date of order.	Average: _____ calendar days Maximum: _____ calendar days (not to exceed 30)
10.10.6	Proposed delivery timeframe for individual motor control equipment from date of order.	Average: _____ calendar days Maximum: _____ calendar days (not to exceed 30)
10.10.7	Proposed delivery timeframe for intelligent MCCs from date of order. Allow 15 days for shop drawing reviews.	Average: _____ calendar days Maximum: _____ calendar days (not to exceed 120)