ADDENDUM #2 - 10/1/2025

RFQ: Consulting Services and Design for MKE Baggage System Handling Upgrades at Milwaukee Mitchell International Airport (MKE)

1.) **Add to Website: Additional Pre-Proposal Q&A**

2.) **Add to Website: ControlTouch Report 7/24/23.**

END OF ADDENDUM #2

BHS Upgrades - ADDENDUM #2 – Q AND A

Q1: Who is doing the BHS system maintenance?

A: ERMC is contracted by the Airlines and performs the monitoring and maintenance on the BHS at MKE.

Q2: Are CAD and/or BIM drawings available to support this work?

A: There are CAD drawings of the outbound system. Not BIM.

Q3: Will CBIS screening equipment be impacted by this project?

A: Equipment will not be physically changed. The exception is the equipment upgrades listed in 2.5.2.2 and 2.5.2.3 listed in the Swanson Rink report.

Q4: Do baggage carousels need to be replaced or modernized?

A: The Outbound Baggage Carousels will need to be replaced or modernized. Inbound Carousels are newer and will remain.

Q5: Do baggage carousels need to consider changes in size, layout, or type?

A: Intent is to keep the same layout, meaning the baggage carousels would be in the same approximate locations and MKE would also prefer to retain the same style (sloped plate).

Q6: Is the schedule in the Swanson-Rink 2025 Report still applicable?

A: In General, yes. However actual dates have not been attached to the schedule yet.

Q7: Are there any design phase calendar goals?

A: The anticipated goal would be to reach 30% Design by end of year.

Q8: Are all recommendations in the Swanson-Rink July 2025 Report going to be implemented? If not, what will be excluded?

A: The design firm shall be prepared to work on all recommendations listed in the Swanson Rink report, including work listed in 4.3, however there is potential for the project to be scaled back.

Q9: What specific funding resources you are pursuing for this project?

A: The project will be locally funded.

Q10: Attachment 6 BHS Assessment Report: The Swanson Rink references the "ControlTouch ROM Proposal" scope of work. Will the ControlTouch ROM Proposal (scope of work) be made available for review?

A: Yes. The Control Touch document be made available via Addendum #2.

Q11: Attachment 6 BHS Assessment Report: Do the referenced section 4.1 and 4.2 ROM recommendations in the Swanson Rink BHS assessment report encompass the full detailed BHS scope of work for this RFQ?

A: The design firm shall be prepared to work on all recommendations listed in the Swanson Rink report, including work listed in 4.3, however there is potential for the project to be scaled back.

Q12: Attachment 6 BHS Assessment Report: For confirmation, are the noted section 4.3 "Additional Design Improvements" to be included in the RFQ scope of work?

A: The design firm shall be prepared to work on all recommendations listed in the Swanson Rink report, including work listed in 4.3, however there is potential for the project to be scaled back

Q13: Existing Load Studies & Distribution Capacity: Has Milwaukee County and/or the Airport performed a load study of the electrical services and distribution panels affected by this project? If so, will the results be made available?

A: No, there has not been a recent study done.

Q14: Extent of Required Distribution Upgrades: What is the anticipated scope of electrical distribution upgrades associated with the new baggage handling system? Should consultants anticipate evaluation of upstream feeders, switchgear, or service entrances, or is the scope limited to local distribution?

A: It is likely that the existing electrical distribution will be sufficient for handling the controls upgrade, however it would be best to anticipate a review of the existing electrical infrastructure.

Q15: Utility Data: Will Milwaukee County provide a 12-month record of utility bills and peak demand data for the affected facilities to help establish baseline loading conditions?

A: Milwaukee County would be willing to share available data in this regard to the selected firm.

Q16: Emergency / Standby / UPS Power: Should consultants assume the baggage handling system and associated controls will require connection to emergency power, optional standby power, or UPS systems? If so, are existing systems available for extension, or should provision for new capacity be considered?

A: Existing system is likely on Emergency / Standby / UPS Power and the new system would also be on Emergency / Standby / UPS Power.

Q17: Lighting & Life Safety Systems: Will baggage handling areas require new lighting and emergency/exit lighting layouts, or is re-use of existing systems acceptable where feasible? Are there any known life safety deficiencies in existing egress/exit lighting systems that this project should address?

A: Lighting and Life Safety Systems would be reused, and no deficiencies are known.

Q18: Low-Voltage / Special Systems: Should consultants anticipate design modifications to any of the following systems as part of the baggage handling system replacement?

Fire Alarm

Telecommunications / Data

Security Cameras

Paging / Public Address

If so, will Milwaukee County define the extent of these modifications, or should the consultant include allowances to evaluate and recommend system impacts?

A: Any low voltage for the control upgrade to be included. But the Fire Alarm, Security Cameras, Paging / PA are not to be upgraded with this project.

Q19: Anticipated New Systems: Does Milwaukee County anticipate that any new building systems will accompany the baggage handling system replacement — such as fire alarm, telecommunications/IT infrastructure, wireless access points, security cameras, or paging/public address systems? If so, will requirements for these systems be defined by the County/Airport, or should the consultant include allowances to evaluate and design modifications?

A: Any IT requirements for the control system upgrade to be included. Fire Alarm, Security Cameras, Paging / PA are not to be upgraded with this project.

Q20: Existing Documentation & Investigations: What level of as-built documentation is currently available for electrical and low-voltage systems in the affected baggage areas? Has Milwaukee County conducted any recent field investigations or condition assessments of these systems?

A: Milwaukee County generally has as-built pdf documents for all projects available. Assume that there has no been recent field investigations or condition assessments done.

Q21: Attachment 2 section VI: Please confirm that the selected “prime” firm is required to hold a Wisconsin business license. And if yes, that the selected “prime” firm will have sufficient time to obtain such license prior to contract award?

A: Please review State of Wisconsin rules and regulations.

Q21: Which contract should be used, the one listed in the RFQ or the one posted in Addendum #1?

A: Plan to review / use the sample contract listed in Addendum #1 called B101.

Q22: If the PRIME can meet the TBE requirement alone, do we still need to show good faith outreach effort with our proposal to be compliant?

A: If a prime itself is a TBE, they can meet the goal if they are self-performing the work.

Q23: Will the RFQ deadline be extended?

A: No.

ControlTouch SYSTEMS

BHS Control System ROM Proposal

Upgrade Baggage Handling Control System at General Mitchell International Airport (MKE)

Proposal Number: 230706

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Corporate Member

Revision Control

Revision	Date	Description
0.0	July 24, 2023	Initial Release

JULY 24, 2023

PROPOSAL

FOR BAGGAGE HANDLING CONTROL SYSTEM

1 EXECUTIVE SUMMARY

ControlTouch Systems is pleased to submit this rough order of magnitude proposal to provide an upgraded Baggage Handling Control System for General Mitchell International Airport (MKE) to replace outdated controls equipment and networks that are being phased out of production by Rockwell Automation.

ControlTouch Systems proposes to provide controls hardware, electrical installation, PLC programming and commissioning, training, documentation, and support as detailed in our proposal to provide a fully functional BHS control system.

Being headquartered in Milwaukee themselves, Rockwell Automation is committed to support ControlTouch in its efforts to upgrade MKE airport's BHS control system throughout the life of the project. Rockwell has been consulted in the preparation of this proposal to ensure the best architecture has been selected to bring the MKE system up-to-date and to future-proof the system as much as is foreseeable.

This proposal includes a pricing line item, or allowance, that includes provisions for a third party to independently develop specifications and test plans and to ensure quality assurance during field commissioning and testing.

2 SYSTEM ARCHITECTURE

2.1 CURRENT SYSTEM

The drawing that follows shows the current control system architecture for MKE:

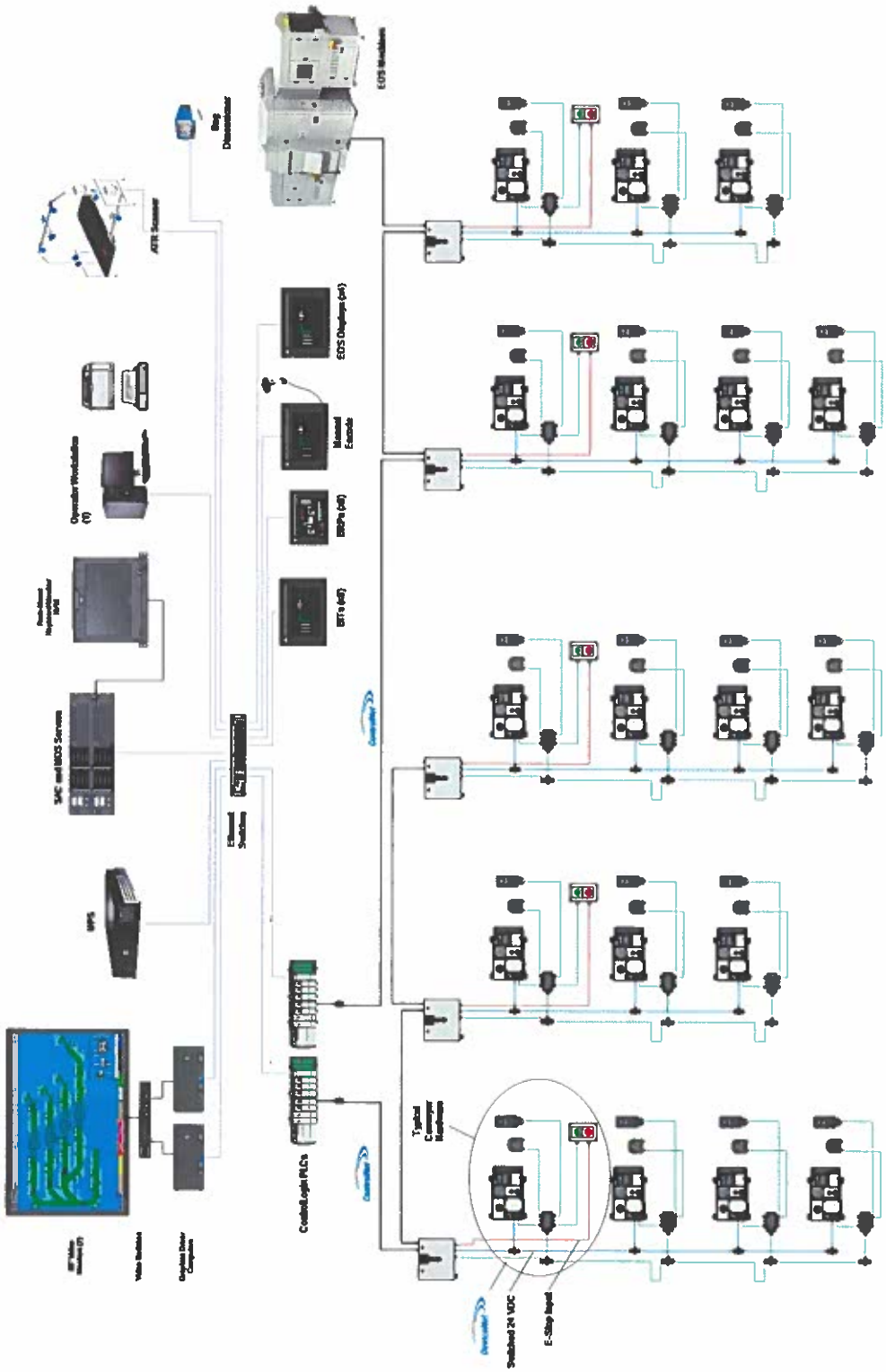

Figure 1 - Current System Architecture

2.2 CURRENT COMMUNICATION NETWORKS

The current control system for the baggage handling system at MKE is largely based around hardware and software manufactured by Rockwell Automation. The current system uses three data communication networks: Ethernet, ControlNet and DeviceNet.

ControlNet is a peer-to-peer network that communicates over RG-6 coaxial cable and at a data rate of 5 Mbit/s. The maximum length for communication is 1000m without repeaters. ControlNet is used to interconnect PLCs to remote I/O racks at MKE.

DeviceNet is a device-level network. DeviceNet is a multidrop fieldbus network that was designed to connect field devices to industrial controllers (PLCs) and utilizes the CAN (controller area network) technology that was developed for communications in the automobile industry.

ControlNet and DeviceNet have been around for decades. Both ControlNet and DeviceNet utilize CIP (common industrial protocol) and are real-time and deterministic, meaning that communications from point A to point B is guaranteed to occur within a certain period provided the network is functioning. Ethernet, in and of itself, is not a deterministic network.

2.3 ETHERNET/IP

Ethernet/IP was developed to adapt the CIP protocol to standard Ethernet for use in industrial networks and is managed by the ODVA, Inc. group, a global trade and standards organization with over 300 members.

Ethernet/IP provides the services and device profiles needed for real-time control applications and to promote consistent implementation of automation functions across a diverse ecosystem of products. In short, it provides the real-time, deterministic communications requires in a control system.

2.4 NETWORK UPGRADE

The PLC communication cards and modules manufactured by Rockwell that incorporate ControlNet and DeviceNet communications rely on integrated circuits to provide that functionality. The manufacturers of those integrated circuits have recently informed Rockwell that these components will no longer be made. This has left Rockwell in the position of having to accelerate the life cycles of some of their communication cards and models more quickly than they had originally predicted.

Rockwell has already discontinued many DeviceNet modules and has started the process to discontinue ControlNet modules as necessary components become unavailable. As a solution, Rockwell recommends that their customers begin to migrate their ControlNet and DeviceNet based systems over to Ethernet/IP. That is the basis for this proposal.

This proposal sets out to eliminate all ControlNet and DeviceNet devices from the MKE system in favor of Ethernet/IP.

2.5 UPGRADED SYSTEM ARCHITECTURE

The following drawing illustrates the connectivity using Ethernet/IP with DLR in the proposed upgraded system architecture:

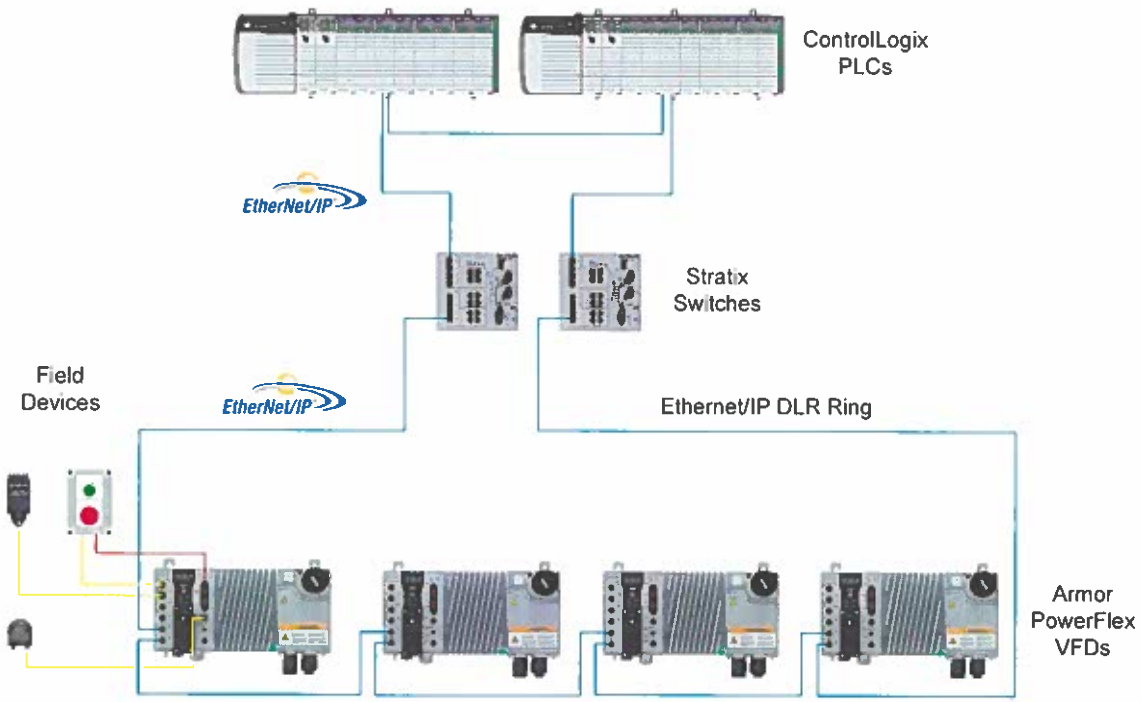

Figure 2 - New System Architecture with DLR

2.5.1 ETHERNET/IP DLR

DLR is the acronym for Device-Level-Ring. DLR is an Ethernet network topology that is ring-based which offers built-in network resiliency. Any single break in communications, either from the cable or a device, will allow remaining devices to continue to communicate on the unbroken path.

The DLR rings will initiate at an Ethernet/IP communication card installed in the primary rack, will route to a Stratix Ethernet switch, then to an Armor PowerFlex and will daisy-chain between up to 50 Armor PowerFlexes in series before returning to a second Stratix switch and then an Ethernet/IP card in the secondary PLC rack. The Ethernet/IP cards will cable together to complete the ring.

3 EQUIPMENT REPLACEMENT

The existing BHS control system at MKE was largely designed using controls hardware manufactured by Rockwell Automation in the 2012/2013 timeframe. As technology has evolved, some of this hardware has been redesigned, replaced or discontinued by the manufacturer. The purpose of this proposal is to replace the outdated equipment with new hardware from Rockwell to mitigate the risks of trying to maintain an outdated control system as replacement components become more difficult to acquire.

3.1 HARDWARE

The following sections detail the equipment that will be replaced under this proposal if accepted.

3.1.1 PLC RACKS

The existing two 10-Slot PLC racks will be replaced with new 13-Slot racks with new power supplies to support the addition of GuardLogix processors and multiple Ethernet communication cards.

3.1.2 PLC PROCESSORS

The current control system uses four Rockwell 1756-L72 (L72) PLC processors; two in the primary rack and two in the secondary (redundant) rack. While these processors are still in production, we are proposing to upgrade these processors. One of the L72 processors in each of the PLC racks will be replaced with a 1756-L83ES GuardLogix controller. These new GuardLogix processors will allow the safety relays located in the Field Control Panels (FCPs) to be eliminated in favor of using the safety rated PLC and the CIP Safety protocol.

The remaining two processors will be upgraded to non-safety 1756-L83E controllers for use in basic conveyor control.

3.1.3 ETHERNET COMMUNICATION CARDS

We propose to eliminate both ControlNet and DeviceNet networks from the system and to replace the communications networks with Ethernet/IP. To facilitate this, the ControlNet cards will be eliminated from the PLC racks and will be replaced with up to eight (8) new Ethernet cards per rack. This will allow for eight device-level-ring (DLR) networks to be supported in the system.

3.1.4 STRATIX SWITCHES

In addition to the Ethernet cards, we will also supply six (6) Stratix Ethernet switches that support up to three (3) DLRs each. These switches will be mounted in a small enclosure in the control room.

3.1.5 ETHERNET COMMUNICATION ADAPTERS

There are Flex I/O and Point I/O racks used in the MKE control system that use ControlNet communications. These I/O racks will be upgraded by replacing the ControlNet communications modules with Ethernet/IP communications modules. There will be one (1) Flex I/O module upgraded and twenty-two (22) Point I/O modules.

3.1.6 MOTOR CONTROLS – ARMOR POWERFLEX

The majority of the conveyors at MKE are currently controlled by the use of ArmorStart VFDs that support DeviceNet communications. These ArmorStarts will be replaced with Armor PowerFlex units drive units that offer both Ethernet/IP communication as well as other advanced functionality. A picture of the Armor PowerFlex follows:

Figure 3 - Rockwell Armor PowerFlex

3.1.6.1 ETHERNET/IP DLR

The new Armor PowerFlex units will sit on an Ethernet/IP DLR network. The PLC will control the Armor PowerFlex, and subsequently the conveyors, by communicating to the unit over Ethernet/IP. The Armor PowerFlex will communicate its status as well as I/O information over Ethernet/IP to the PLC.

3.1.6.2 24 VDC POWER SUPPLY

The current system uses 24 VDC power supplies installed in the FCP enclosures to supply DC control voltage for the system. The Armor PowerFlex is available with an internal 24 VDC supply that can be used to supply control voltages in lieu of using separate DC supplies in the system, eliminating the need for extra cabling to distribute DC power throughout the system.

3.1.6.3 INPUTS AND OUTPUTS

The Armor PowerFlex supports standard DC inputs and outputs as well as safety inputs. Photoeyes will be cabled into the standard inputs, as well as shaft encoders and control stations. Emergency stop pushbuttons will be wired into the safety inputs.

3.1.6.4 SAFE TORQUE OFF

The Armor PowerFlex will be provided in the safety version that includes a built-in safe torque off feature that is activated through Ethernet/IP using CIP Safety. When an E-stop is pressed in a zone controlling an Armor PowerFlex, the GuardLogix processor will instruct the Armor PowerFlex units in the E-Stop zone to stop and to disable activation of the IGBTs (disabling power from reaching the motor).

3.1.7 PHOTOEYES

The Allen-Bradley DeviceNet polarized, retroreflective photoelectric sensors will be replaced with non-DeviceNet Allen-Bradley photoeyes that will cable into the Armor PowerFlex units.

3.1.8 SHAFT ENCODERS

The DeviceNet shaft encoders will be replaced with simple incremental encoders that cable into the Armor PowerFlex units.

3.1.9 STACK LIGHTS

The DeviceNet stack lights and/or alarm beacons will be replaced with discrete output devices that wire into Ethernet/IP Armor Blocks that are included in our proposal.

3.1.10 CONTROL STATIONS

The existing control stations at MKE are all DeviceNet subassemblies. The smaller control stations (4 operators or less) will be replaced with units that interface using simple inputs and outputs and will cable into the Armor PowerFlex input and output ports.

Larger control stations (more than 4 operators) will be provided with an Ethernet/IP I/O block either mounted inside the unit or cabled externally and will sit on the DLR network.

4 PLC SOFTWARE

The PLC software will largely remain unchanged during the upgrade process. The inputs that were being received via DeviceNet will now come across the Ethernet/IP network and the outputs driving the ArmorStarts and other equipment will also pass outwardly through the Ethernet/IP network. A large portion of the PLC work will entail remapping the inputs and outputs into the currently running program, dependent upon how the devices are now connected into the system. This work is more configuration of the PLC system than it is actually programming.

The control programs will require very few logical modifications. Bag tracking, fault detection, and other program blocks will basically remain unchanged.

One area of the PLC software that will change is in dealing with emergency stops. The hardwired E-Stop zoning will be eliminated in favor of providing the E-Stop zoning within the GuardLogix processor. This will require that new safety PLC logic be developed to handle the new E-Stop connectivity. While this will add additional work for the PLCs it will eliminate a large amount of hardware in the field and simplify the interconnectivity of the E-Stop circuits.

5 UPPER-LEVEL CONTROL SUBSYSTEM

Our proposal includes modifying the existing upper-level control system to provide any necessary modifications that may be required to remain compatible with the upgraded lower-level control system.

6 PHASING

Our proposal is based upon the development of a detailed phasing plan to be used for installation. We have assumed a 20-week schedule in the field for installation, commissioning and testing with approximately 16 phases. We have made some assumptions that portions of the system can be taken out of service for up to a week at a time while installation, commissioning and testing is performed. As an example, we are assuming that one of the SS lines can be taken out of service at a time to be upgraded.

In areas where the lines are critical for the system to function, such as the main lines, we have assumed that work to be completed in the evening hours with no downtime allowed.

7 TESTING

Our proposal includes comprehensive testing after each section of the system is upgraded to ensure that the system functions properly and that the security of the system has not been compromised. Appropriate CBIS Change Requests (CCRs) will be submitted as required to the TSA prior to making changes to the PLC that may affect secure areas of the system. We have also included the performance of a complete ISAT test after the entire system has been upgraded.

8 SERVICES

8.1 PROJECT OVERSIGHT

Our proposal includes an allowance for project oversight. This line item provides for an independent third party to develop a specification for the upgraded control system, as well as a test plan, and to oversee the field commissioning and testing of the system to ensure execution quality and system security as the system is upgraded. This party would also be responsible for interfacing with the TSA

to ensure that the appropriate CCR documents are developed and approved by the TSA and to oversee a final ISAT at the conclusion of the project.

8.2 ENGINEERING DRAWINGS

ControlTouch Systems will provide a complete set of updated electrical installation drawings before deployment of the system to the field. These drawings will be provided in either PDF or AutoCAD format.

After the installation is complete, ControlTouch Systems will update the design and installation drawings delivered as part of the project to reflect any changes made to the system during installation. These updated "as-built" drawings will be provided as a part of the submittal procedure.

8.3 END-USER DOCUMENTATION

ControlTouch Systems will update the existing O&M manual. The Operations section will be written to provide operational personnel with an understanding of how to operate the upgraded system. The Maintenance section will provide descriptions of the electrical equipment used in the system and troubleshooting and maintenance procedures along with detailed electrical diagrams of the components in the system.

8.4 TRAINING

ControlTouch Systems will provide controls training utilizing on-site commissioning engineers that have been factory-trained by Allen-Bradley for the design and implementation of Allen-Bradley hardware and software-based integrated systems. ControlTouch Systems is a certified Allen-Bradley systems integrator.

9 CLARIFICATIONS

9.1 WARRANTY

Our proposal covers replacement parts for any new equipment that we provide for the first twelve months of operation. This price does not include labor to troubleshoot defective equipment or the labor to replace the part in the system. We would expect airport maintenance personnel to determine the part is defective, replace the defective part with a spare component, return the defective part to ControlTouch Systems, and then ControlTouch Systems will provide replacement part freight prepaid to the airport. ControlTouch Systems has **not** included any warranty obligations outside of our standard agreement as described above. 24/7 remote warranty support has not been included per specification.

9.2 DUTY AND TAX REQUIREMENTS

ControlTouch Systems has **not** included any duties or taxes in our quotation.

10 PRICE SCHEDULE

ControlTouch Systems, LLC will provide the proposed control system for the prices detailed below:

ITEM	PRICE
Project Oversight -Specification Development, Quality Assurance, TSA Interface, etc. (Allowance)	$ 150,000.00
Electrical Controls Hardware Replacement	$ 1,676,280.00
Engineering (Design, Programming)	$ 298,165.00
Commissioning	$ 482,710.00
Electrical Installation	$ 1,358,025.00
TOTAL	**$ 3,965,180.00**

ControlTouch would like to thank you for providing us with the opportunity to provide this proposal. We hope this quotation meets your requirements and answers any questions you may have. If you need further clarification on any aspects of our proposed design or how the pricing was derived, please feel free to contact us.