

01A

Letting September 18, 2026

Notice to Bidders, Specifications and Proposal

WARNING: FAA Buy American Preference provisions apply to this contract. Failure to submit a "Certification of Compliance with FAA Buy American Preference – Construction Projects" form in accordance with the bidding procedures set forth herein (Appendix A3) will result in the bid being declared non-responsive.



**Illinois Department
of Transportation**

Springfield, Illinois 62764

**Contract No. AU074
Aurora Municipal Airport
Aurora, Illinois
Kane County
Illinois Project No. ARR-4915
SBG Project No. 3-17-SBGP-184/220/247/TBD**



1. TIME AND PLACE OF OPENING BIDS. Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 12:00 p.m. on September 18, 2026, at which time the bids will be publicly opened from the iCX SecureVault.

2. DESCRIPTION OF WORK. The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. AU074
Aurora Municipal Airport
Aurora, Illinois
Kane County
Illinois Project No. ARR-4915
SBG Project No. 3-17-SBGP-184/220/247/TBD**

Rehabilitate Airfield Lighting Vault and Replace Vault Generator

For engineering information, please contact Sheue Torng Lee, P.E. of Crawford, Murphy & Tilly, Inc. at 630.907.7079.

3. INSTRUCTIONS TO BIDDERS.

(a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 10-23 of the Standard Specifications for Construction of Airports (Adopted March 22, 2023), become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.

4. AWARD CRITERIA AND REJECTION OF BIDS. This contract will be awarded within 90 calendar days to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

5. PRE-BID CONFERENCE. N/A

6. DISADVANTAGED BUSINESS POLICY. The DBE goal for this contract is 0.0%.

7. SPECIFICATIONS AND DRAWINGS. The work shall be done in accordance with the Standard Specifications for Construction of Airports (Adopted March 22, 2023), the Special Provisions dated July 24, 2026, and the Construction Plans dated July 24, 2026 as approved by the Illinois Department of Transportation, Division of Aeronautics.

- 8. BIDDING REQUIREMENTS AND BASIS OF AWARD.** When alternates are included in the proposal, the following shall apply:
- a. Additive Alternates
- (1) Bidders must submit a bid for the Base Bid and for all Additive Alternates.
- (2) Award of this contract will be made to the lowest responsible qualified bidder computed as follows:
- The lowest aggregate amount of (i) the Base Bid plus (ii) any Additive Alternate(s) which the Department elects to award based on the availability of funding.
- Award of this contract will be limited to the following bid alternate combinations:
- I. Base Bid
 - II. Base Bid + Additive Alternate 1
 - III. Base Bid + Additive Alternate 1 + Additive Alternate 2
 - IV. Base Bid + Additive Alternate 1 + Additive Alternate 2 + Additive Alternate 3
- The Department may elect not to award any Additive Alternates. In that case, award will be to the lowest responsible qualified bidder of the Base Bid.
- b. Optional Alternates
- (1) Bidders must submit a bid for the Base Bid and for either Alternate A or Alternate B or for both Alternate A and Alternate B.
- (2) Award of this contract will be made to the lowest responsible qualified bidder computed as follows:
- The lower of the aggregate of either (i) the Base Bid plus Alternate A or (ii) the Base Bid plus Alternate B.
- 9. CONTRACT TIME.** The Contractor shall complete all work within the specified contract time. Any calendar day extension beyond the specified contract time must be fully justified, requested by the Contractor in writing, and approved by the Engineer, or be subject to liquidated damages.
- The contract time for this contract is 61 calendar days.
- 10. INDEPENDENT WEIGHT CHECKS.** The Department reserves the right to conduct random unannounced independent weight checks on any delivery for bituminous, aggregate or other pay item for which the method of measurement for payment is based on weight. The weight checks will be accomplished by selecting, at random, a loaded truck and obtaining a loaded and empty weight on an independent scale. In addition, the department may perform random weight checks by obtaining loaded and empty truck weights on portable scales operated by department personnel.
- 11. GOOD FAITH COMPLIANCE.** The Illinois Department of Transportation has made a good faith effort to include all statements, requirements, and other language required by federal and state law and by various offices within federal and state governments whether that language is required by law or not. If anything of this nature has been left out or if additional language etc. is later required, the bidder/contractor shall cooperate fully with the Department to modify the contract or bid documents to correct the deficiency. If the change results in increased operational costs, the Department shall reimburse the contractor for such costs as it may find to be reasonable.

By Order of the
Illinois Department of Transportation

Gia Biagi,
Secretary

ILLINOIS DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS

REQUIRED CONTRACT PROVISIONS FOR STATE FUNDED AIRPORT CONSTRUCTION PROJECTS

The following provisions are State of Illinois requirements and are in addition to the REQUIRED CONTRACT PROVISIONS FOR AIRPORT IMPROVEMENT PROGRAM AND FOR OBLIGATED SPONSORS

DISADVANTAGED BUSINESS POLICY

NOTICE: This proposal contains the special provision entitled "Disadvantaged Business Participation." Inclusion of this Special Provision in this contract satisfies the obligations of the Department of Transportation under federal law as implemented by 49 CFR 23 and under the Illinois "Minority and Female Business Enterprise Act."

POLICY: It is public policy that the businesses defined in 49 CFR Part 23 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with State or Federal funds. Consequently, the requirements of 49 CFR Part 23 apply to this contract.

OBLIGATION: The Contractor agrees to ensure that the businesses defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of this contract. In this regard, the Contractor shall take all necessary and reasonable steps, in accordance with 49 CFR Part 23, to ensure that the said businesses have the maximum opportunity to compete for and perform portions of this contract. The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

The Contractor shall include the above Policy and Obligation statements of this Special Provision in every subcontract, including procurement of materials and leases of equipment.

DBE/WBE CONTRACTOR FINANCE PROGRAM: On contracts where a loan has been obtained through the DBE/WBE Contractor Finance Program, the Contractor shall cooperate with the Department by making all payments due to the DBE/WBE Contractor by means of a two-payee check payable to the Lender (Bank) and the Borrower (DBE/WBE Contractor).

BREACH OF CONTRACT: Failure to carry out the requirements set forth above and in the Special Provision shall constitute a breach of contract and may result in termination of the contract or liquidated damages as provided in the special provision.

SPECIAL PROVISION FOR SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: November 2, 2017

Revised: April 1, 2019

To account for the preparatory work and the operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting according to Section 80-01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least seven days prior to the subcontractor starting work. The amount paid shall be at the following percentage of the amount of the subcontract reported on form AER 260A submitted for the approval of the subcontractor's work.

Value of Subcontract Reported on Form AER 260A	Mobilization Percentage
Less than \$10,000	25%
\$10,000 to less than \$20,000	20%
\$20,000 to less than \$40,000	18%
\$40,000 to less than \$60,000	16%
\$60,000 to less than \$80,000	14%
\$80,000 to less than \$100,000	12%
\$100,000 to less than \$250,000	10%
\$250,000 to less than \$500,000	9%
\$500,000 to \$750,000	8%
Over \$750,000	7%

The mobilization payment to the subcontractor is an advance payment of the reported amount of the subcontract and is not a payment in addition to the amount of the subcontract; therefore, the amount of the advance payment will be deducted from future progress payments.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

SPECIAL PROVISION FOR PAYMENTS TO SUBCONTRACTORS

Effective: November 2, 2017

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts and to set the time for such payments.

State law also addresses the timing of payments to be made to subcontractors and material suppliers. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, requires that when a Contractor receives any payment from the Department, the Contractor shall make corresponding, proportional payments to each subcontractor and material supplier performing work or supplying material within 15 calendar days after receipt of the Department payment. Section 7 of the Act further provides that interest in the amount of two percent per month, in addition to the payment due, shall be paid to any subcontractor or material supplier by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors and material suppliers throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the State Prompt Payment Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

When progress payments are made to the Contractor according to Article 90-07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause. If reasonable cause is asserted, written notice shall be provided to the applicable subcontractor and/or material supplier and the Engineer within five days of the Contractor receiving payment. The written notice shall identify the contract number, the subcontract or material purchase agreement, a detailed reason for refusal, the value of payment being withheld, and the specific remedial actions required of the subcontractor and/or material supplier so that payment can be made.

This Special Provision does not create any rights in favor of any subcontractor or material supplier against the State or authorize any cause of action against the State on account of any payment, nonpayment, delayed payment, or interest claimed by application of the State Prompt Payment Act. The Department will not approve any delay or postponement of the 15 day requirement except for reasonable cause shown after notice and hearing pursuant to Section 7(b) of the State Prompt Payment Act. State law creates other and additional remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond according to the Public Construction Bond Act, 30 ILCS 550.

SPECIAL PROVISION FOR SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)

Effective: April 2, 2018

Subcontractor and Disadvantaged Business Enterprise Payment Reporting

The Contractor shall report all payments made to the following parties:

- (a) first tier subcontractors;
- (b) lower tier subcontractors affecting disadvantaged business enterprise (DBE) goal credit;
- (c) material suppliers or trucking firms that are part of the Contractor's submitted DBE utilization plan.

The report shall be made through the Department's on-line subcontractor payment reporting system within 21 days of making the payment.

SPECIAL PROVISION FOR ADDITIONAL STATE REQUIREMENTS FOR FEDERAL-AID CONSTRUCTION CONTRACTS

Effective: February 1, 1969

Revised: January 1, 2017

EQUAL EMPLOYMENT OPPORTUNITY

In the event of the Contractor's noncompliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act, or the Illinois Department of Human Rights Rules and Regulations, the Contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political sub-divisions or municipal corporations, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation.

During the performance of this Contract, the Contractor agrees as follows:

- (1) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.
- (2) That, if it hires additional employees in order to perform this contract or any portion hereof, it will determine the availability (in accordance with the Illinois Department of Human Rights Rules and Regulations) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.
- (3) That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service.
- (4) That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations. If any labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with such Act and Rules and Regulations, the Contractor will promptly so notify the Illinois Department of Human Rights and IDOT and will recruit employees from other sources when necessary to fulfill its obligations thereunder.
- (5) That it will submit reports as required by the Illinois Department of Human Rights Rules and Regulations, furnish all relevant information as may from time to time be requested by the Illinois Department of Human Rights or IDOT, and in all respects comply with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.
- (6) That it will permit access to all relevant books, records, accounts, and work sites by personnel of IDOT and the Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.
- (7) That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that the provisions will be binding upon the subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by subcontractors; and further it will promptly notify IDOT and the Illinois Department of Human Rights in the event any subcontractor fails or refuses to comply with these provisions. In addition, the Contractor will not utilize any subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

SUBMISSION OF PAYROLL RECORDS – FEDERAL AID CONTRACT (BDE)

Effective: April 1, 2026

If the prevailing rate of wages published by the Illinois Department of Labor (IDOL) is equal to or greater than the prevailing wage determination by the United States Secretary of Labor for the same locality for the same type of construction used to classify the federal construction project, the requirements of the Illinois Prevailing Wage Act (820 ILCS 130) shall apply, including the "ILLINOIS PREVAILING WAGE ACT" section below. If not, only the requirements of the Davis-Bacon Act shall apply, including the "DAVIS-BACON ACT" section below.

DAVIS-BACON ACT:

STATEMENTS AND PAYROLLS

The payroll records shall include the worker's name, social security number, last known address, telephone number, email address, classification(s) of work actually performed, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof), daily and weekly number of hours actually worked in total, deductions made, and actual wages paid.

The Contractor and each subcontractor shall submit certified payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers, last known addresses, telephone numbers, and email addresses shall not be included on weekly submittals. Instead, the payrolls need only include an identification number for each employee (e.g., the last four digits of the employee's social security number). The submittals shall be made using LCPTracker Pro software. The software is web-based and can be accessed at <https://lcptracker.com/>. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option ("No Work", "Suspended", or "Complete") selected.

ILLINOIS PREVAILING WAGE ACT:

STATEMENTS AND PAYROLLS

(1) Prevailing Wages. All wages paid by the Contractor and each subcontractor shall be in compliance with The Prevailing Wage Act (820 ILCS 130), as amended, except where a prevailing wage violates a federal law, order, or ruling, the rate conforming to the federal law, order, or ruling shall govern. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto. If the Department of Labor revises the wage rates, the Contractor will not be allowed additional compensation on account of said revisions.

(2) Payroll Records. The Contractor and each subcontractor shall make and keep, for a period of five years from the later of the date of final payment under the contract or completion of the contract, records of the wages paid to his/her workers. The payroll records shall include the worker's name, the worker's address, the worker's telephone number when available, the worker's social security number, the worker's classification or classifications, the worker's gross and net wages paid in each pay period, the worker's number of hours worked each day, and the worker's starting and ending times of work each day. However, any Contractor or subcontractor who remits contributions to a fringe benefit fund that is not jointly maintained and jointly governed by one or more employer and one or more labor organization must additionally submit the worker's hourly wage rate, the worker's hourly overtime wage rate, the worker's hourly fringe benefit rates, the name and address of each fringe benefit fund, the plan sponsor of each fringe benefit, if applicable, and the plan administrator of each fringe benefit, if applicable. Upon seven business days' notice, these records shall be available at a location within the State, during reasonable hours, for inspection by the Department or the Department of Labor; and Federal, State, or local law enforcement agencies and prosecutors.

(3) Submission of Payroll Records. The Contractor and each subcontractor shall, no later than the 15th day of each calendar month, file a certified payroll for the immediately preceding month to the Illinois Department of Labor (IDOL) through the Certified Transcript of Payroll Portal in compliance with the State Prevailing Wage Act (820 ILCS 130). The portal can be found on the IDOL website at <https://labor.illinois.gov>. Payrolls shall be submitted in the format prescribed by the IDOL.

In addition to filing certified payroll(s) with the IDOL, the Contractor and each subcontractor shall certify and submit payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers shall not be included on weekly submittals. Instead, the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number). In addition, starting and ending times of work each day may be omitted from the payroll records submitted. The submittals shall be made using LCPTracker Pro software. The software is web-based and can be accessed at <https://lcptracker.com/>. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option ("No Work", "Suspended", or "Complete") selected.

(4) Employee Interviews. The Contractor and each subcontractor shall permit his/her employees to be interviewed on the job, during working hours, by compliance investigators of the Department or the Department of Labor.

SPECIAL PROVISION FOR NPDES CERTIFICATION

In accordance with the provisions of the Illinois Environmental Protection Act, the Illinois Pollution Control Board Rules and Regulations (35 Ill. Adm. Code, Subtitle C, Chapter I), and the Clean Water Act, and the regulations thereunder, this certification is required for all construction contracts that will result in the disturbance of one or more acres total land area.

The bidder certifies under penalty of law that he/she understands the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR100000) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

The Airport Owner or its Agent will:

- 1) prepare, sign and submit the Notice of Intent (NOI)
- 2) conduct site inspections and complete and file the inspection reports
- 3) submit Incidence of Non-Compliance (ION) forms
- 4) submit Notice of Termination (NOT) form

Prior to the issuance of the Notice-to-Proceed, for each erosion control measure identified in the Storm Water Pollution Prevention Plan, the contractor or subcontractor responsible for the control measure(s) must sign the above certification (forms to be provided by the Department).

SPECIAL PROVISION FOR COMPLETION TIME VIA CALENDAR DAYS

It being understood and agreed that the completion within the time limit is an essential part of the contract, the bidder agrees to complete the work within 61 calendar days, unless additional time is granted by the Engineer in accordance with the provisions of the specifications. In case of failure to complete the work on or before the time named herein, or within such extra time as may have been allowed by extensions, the bidder agrees that the Department of Transportation shall withhold from such sum as may be due him/her under the terms of this contract, the costs, as set forth in Section 80-09 Failure to Complete on Time of the Standard Specifications, which costs shall be considered and treated not as a penalty but as damages due to the State from the bidder by reason of the failure of the bidder to complete the work within the time specified in the contract.

ILLINOIS WORKS APPRENTICESHIP INITIATIVE – STATE FUNDED CONTRACTS (BDE)**Effective: June 2, 2021****Revised: April 2, 2024**

Illinois Works Jobs Program Act (30 ILCS 559/20-1 et seq.). For contracts having an awarded contract value of \$500,000 or more, the Contractor shall comply with the Illinois Works Apprenticeship Initiative (30 ILCS 559/20-20 to 20-25) and all applicable administrative rules. The goal of the Illinois Apprenticeship Works Initiative is that apprentices will perform either 10% of the total labor hours actually worked in each prevailing wage classification or 10% of the estimated labor hours in each prevailing wage classification, whichever is less. Of this goal, at least 50% of the labor hours of each prevailing wage classification performed by apprentices shall be performed by graduates of the Illinois Works Pre-Apprenticeship Program, the Illinois Climate Works Pre-Apprenticeship Program, or the Highway Construction Careers Training Program.

The Contractor may seek from the Department of Commerce and Economic Opportunity (DCEO) a waiver or reduction of this goal in certain circumstances pursuant to 30 ILCS 559/20-20(b). The Contractor shall ensure compliance during the term of the contract and will be required to report on and certify its compliance. An apprentice use plan, apprentice hours, and a compliance certification shall be submitted to the Engineer on forms provided by the Department and/or DCEO.

SPECIAL PROVISION FOR SUBMISSION OF BIDDERS LIST INFORMATION (BDE)**Effective: January 2, 2025****Revised: March 2, 2025**

In accordance with 49 CFR 26.11(c) all DBE and non-DBEs who bid as prime contractors and subcontractors shall provide bidders list information, including all DBE and non-DBE firms from whom the bidder has received a quote or bid to work as a subcontractor, whether or not the bidder has relied upon that bid in placing its bid as the prime contractor.

The bidders list information shall be submitted with the bid using the link provided within the “Integrated Contractor Exchange (iCX)” application of the Department’s “EBids System”.

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
SECTION 80 PROSECUTION AND PROGRESS

This Special Provision amends the provisions of the Standard Specifications for Construction of Airports (Adopted March 22, 2023) and shall be construed to be a part thereof, superseding any conflicting provisions thereof applicable to the work under the contract.

80-09 Failure to complete on time.

ADD:

Schedule of Deductions for Each Day of Overrun in Contract Time			
Original Contract Amount		Daily Charges	
From More Than	To and Including	Calendar Day	Work Day
\$ 0	\$ 100,000	\$ 475	\$ 675
100,000	500,000	750	1,050
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,275	1,725
3,000,000	6,000,000	1,425	2,000
6,000,000	12,000,000	2,300	3,450
12,000,000	And over	6,775	9,525

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
SECTION 90 MEASUREMENT AND PAYMENT

This Special Provision amends the provisions of the Standard Specifications for Construction of Airports (Adopted March 22, 2023) and shall be construed to be a part thereof, superseding any conflicting provisions thereof applicable to the work under the contract.

90-07 Partial payments.

DELETE: The entire section.

ADD: Partial payments will be made to the Contractor at least once each month as the work progresses. The payments will be based upon estimates, prepared by the Resident Engineer, of the value of the work performed and materials complete and in place in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the Section 90-08 PAYMENT FOR MATERIALS ON HAND. From the amount of partial payment so determined on Federal-Aid projects, there shall be deducted an amount up to ten percent of the cost of the completed work which shall be retained until all conditions necessary for financial closeout of the project are satisfied. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than \$1,000.00 will be approved for payment other than the final payment. A final voucher for under \$5.00 shall not be paid except through electronic funds transfer. (15 ILCS 405/9(b-1))

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders, except when such excess quantities have been determined by the Engineer to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Department to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in Section 90-09 ACCEPTANCE AND FINAL PAYMENT.

Progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c).

If a Contractor or subcontractor has defaulted on a loan issued under the Department's Disadvantaged Business Revolving Loan Program (20 ILCS 2705/2705-610) progress payments may be reduced pursuant to the terms of that loan agreement. In such cases, the amount of the estimate related to the work performed by the Contractor or subcontractor, in default of the loan agreement, will be offset, in whole or in part, and vouchered by the Department to the Working Capital Revolving Fund or designated escrow account. Payment for the work shall be considered as issued and received by the Contractor or subcontractor on the date of the offset voucher. Further, the amount of the offset voucher shall be a credit against the Department's obligation to pay the Contractor, the Contractor's obligation to pay the subcontractor, and the Contractor's or subcontractor's total loan indebtedness to the Department. The offset shall continue until such time as the entire loan indebtedness is satisfied. The Department will notify the Contractor and Fund Control Agent in a timely manner of such offset. The Contractor or subcontractor shall not be entitled to additional payment in consideration of the offset.

In accordance with 49 USC § 47111, the Department will not make payments totaling more than 90 percent of the contract until all conditions necessary for financial closeout of the project are satisfied.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved.

90-09 Trust agreement option.

DELETE: The entire section.

APPENDIX A – FEDERAL AVIATION ADMINISTRATION (FAA) REQUIRED CONTRACT PROVISIONS

A1 ACCESS TO RECORDS AND REPORTS

A1.1 CONTRACT CLAUSE

ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

A2 BREACH OF CONTRACT TERMS

A2.1 CONTRACT CLAUSE

This provision is required for all contracts that exceed the simplified acquisition threshold as stated in 2 CFR Part 200, Appendix II (A). This threshold is occasionally adjusted for inflation and is \$350,000.

BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the Contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide Contractor written notice that describes the nature of the breach and corrective actions the Contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the Contractor must correct the breach. Owner may proceed with termination of the contract if the Contractor fails to correct the breach by the deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

A3 BUY AMERICAN PREFERENCE

A3.1 SOLICITATION CLAUSES

A3.1.1 Certification of Compliance with FAA Buy American Preference Statement

FAA BUY AMERICAN PREFERENCE

The Contractor certifies that its bid/offer is in compliance with 49 U.S.C. § 50101, BABA and other related Made in America Laws¹, U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Illinois Department of Transportation, Division of Aeronautics will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

The bidder or offeror certifies procurement of certain rolling stock using FAA grant funds will prohibit airports from using Federal financial assistance to procure buses or rail car vehicle rolling stock from covered entities.

¹Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or "Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

A3.1.2 Illinois Department of Transportation, Division of Aeronautics Requirements

The bidder shall submit the completed and signed "Certification of Compliance with FAA Buy American Preference – Construction Projects" form with the bid. The required form must be uploaded in the "Miscellaneous Documents" area as a single .pdf file in the "Integrated Contractor Exchange (iCX)" application within the Department's "EBids System".

The Department will not accept a "Certification of Compliance with FAA Buy American Preference – Construction Projects" form if it does not meet the bidding procedures set forth herein and the bid will be declared non-responsive. In the event the bid is declared non-responsive,

the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty and may deny authorization to bid the project if re-advertised for bids.

Any and all steel products used in the performance of this contract by the Contractor, subcontractors, producers, and suppliers are required to adhere to the Illinois Steel Products Procurement Act (30 ILCS 565/), which requires that all steel items be of 100 percent domestic origin and manufacture. Any products listed under the Federal Aviation Administration's (FAA) nationwide approved list of "Equipment Meeting Buy American Requirements" shall be deemed as meeting the requirements of the Illinois Steel Products Procurement Act.

All FAA Buy American Waivers are the responsibility of the Contractor, must be obtained prior to the Notice to Proceed, and must be submitted to the Illinois Department of Transportation, Division of Aeronautics for review and approval before being forwarded to the FAA. Any products used on the project that cannot meet the domestic requirement, and for which a waiver prior to the Notice to Proceed was not obtained, will be rejected for use and subject to removal and replacement with no additional compensation, and the contractor deemed non-responsive.

A3.1.3 Certification of Compliance with FAA Buy American Preference – Construction Projects

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 U.S.C. § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter "X".

- ☐ Bidder or offeror hereby certifies that it will comply with 49 U.S.C. § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:
- Only installing iron, steel and manufactured products produced in the United States;
 - Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.
 - Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
 - Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

- To provide to the Illinois Department of Transportation, Division of Aeronautics and the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
- To faithfully comply with providing U.S. domestic products.
- To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
- Certify that all construction materials used in the project are manufactured in the U.S.

- ☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 U.S.C. § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 U.S.C. § 50101(b).

By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

- To submit to the Illinois Department of Transportation, Division of Aeronautics and the FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
- That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
- To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
- To furnish U.S. domestic product for any waiver request that the FAA rejects.
- To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 2 Waiver (Nonavailability) - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
- b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
- c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “facility/project.” The required documentation for a Type 3 waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
- b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
- c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
- d) Percentage of non-domestic component and subcomponent cost as compared to total “facility” component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

- a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
- b) At minimum two comparable equal bids and/or offers;
- c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
- d) Completed waiver applications for each comparable bid and/or offer.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date

Signature

Company Name

Title

A4 CIVIL RIGHTS - GENERAL

A4.1 CONTRACT CLAUSES

A4.1.1 General Clause that is used for Contracts, Lease Agreements, and Transfer Agreements

GENERAL CIVIL RIGHTS PROVISIONS

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin, creed, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance. This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

A4.1.2 Specific Clause that is used for General Contract Agreements

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

A5 CIVIL RIGHTS – TITLE VI ASSURANCE

A5.1 SOLICITATION CLAUSE

A5.1.1 Title VI Solicitation Notice

Title VI Solicitation Notice:

The Illinois Department of Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4), 28 CFR § 50.3, and 49 CFR Part 21, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, all contractors will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of the owner's race, color, national origin, sex, creed, age, or disability in consideration for an award.

A5.2 CONTRACT CLAUSES

A5.2.1 Title VI List of Pertinent Nondiscrimination Acts and Authorities

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR Part 21 (Non-discrimination in Federally-Assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964) including amendments thereto;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794 *et seq.*), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);
- The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 *et seq.*) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 U.S.C. § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (P.L. 100-259) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990 (42 U.S.C. § 12101, *et seq.*) (prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities) as implemented by U.S. Department of Transportation regulations at 49 CFR Parts 37 and 38;
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. § 1681, *et seq.*).

A5.2.2 Nondiscrimination Requirements/Title VI Clauses for Compliance

Compliance with Nondiscrimination Requirements:

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor"), agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin), creed, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21 including amendments thereto.
3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
 - a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
 - b. Cancelling, terminating, or suspending a contract, in whole or in part.

Incorporation of Provisions: The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the interests of the Sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

A6 CLEAN AIR AND WATER POLLUTION CONTROL

A6.1 CONTRACT CLAUSE

This provision is required for all contracts and lower tier contracts that exceed \$150,000.

CLEAN AIR AND WATER POLLUTION CONTROL

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 U.S.C. §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. §§ 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceed \$150,000.

A7 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

A7.1 CONTRACT CLAUSE

This provision applies to all contracts and lower tier contracts that exceed \$100,000, and employ laborers, mechanics, watchmen, and guards.

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

1. Overtime Requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of \$33 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract

Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.

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

A8 COPELAND "ANTI-KICKBACK" ACT

A8.1 CONTRACT CLAUSE

This provision applies to all construction contracts and subcontracts financed under the AIP that exceed \$2,000.

COPELAND "ANTI-KICKBACK" ACT

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

A9 DAVIS-BACON REQUIREMENTS

A9.1 CONTRACT CLAUSE

This provision is to be incorporated into all construction contracts and subcontracts that exceed \$2,000 and include funding from the AIP.

DAVIS-BACON REQUIREMENTS

1. Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under regulations implementing the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

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

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

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

2. Withholding. The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

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

(ii)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR § 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead, the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/agencies/whd/government-contracts/construction/payroll-certification> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

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

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

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

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

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

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

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to

make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR § 5.12.

4. Apprentices and Trainees.

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

(ii) Trainees. Except as provided in 29 CFR § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at no less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

5. Compliance with Copeland Act Requirements.

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR §§ 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR § 5.5.

7. Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR § 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

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

9. Disputes Concerning Labor Standards.

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

10. Certification of Eligibility.

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC § 1001.

A10 DEBARMENT AND SUSPENSION

A10.1 CERTIFICATION CLAUSES

A10.1.1 Bidder or Offeror Certification

CERTIFICATION OF OFFERER/BIDDER REGARDING DEBARMENT

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

A10.1.2 Lower Tier Contract Certification

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a "covered transaction", must confirm each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally-assisted project. The successful bidder will accomplish this by:

Checking the System for Award Management at website: <https://www.sam.gov>.

Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.

Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

A11 DISADVANTAGED BUSINESS ENTERPRISE

A11.1 REQUIRED PROVISIONS

A11.1.1 Solicitation Language (Solicitations with a DBE Contract Goal)

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

- (1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
- (2) A description of the work that each DBE firm will perform;
- (3) The dollar amount of the participation of each DBE firm listed under (1);
- (4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal
- (5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
- (6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR Part 26 including any amendments thereto. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

A11.1.2 Solicitation Language (Solicitations with No DBE Contract Goal)

The requirements of 49 CFR Part 26 including any amendments thereto apply to this contract. It is the policy of the Illinois Department of Transportation to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

A11.1.3 Prime Contracts (Projects covered by a DBE Program)

Contract Assurance (49 CFR § 26.13) –

The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 including any amendments thereto in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- 1) Withholding monthly progress payments;

- 2) Assessing sanctions;
- 3) Liquidated damages; and/or
- 4) Disqualifying the Contractor from future bidding as non-responsible.

A12 DISTRACTED DRIVING

A12.1 CONTRACT CLAUSE

TEXTING WHEN DRIVING

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving", (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving", (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding \$15,000 that involve driving a motor vehicle in performance of work activities associated with the project.

A13 PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

A13.1 CONTRACT CLAUSE

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act P.L. 115-232, § 889(f)(1)).

A14 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

A14.1 SOLICITATION CLAUSE

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR Part 201, et seq, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

A15 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

A15.1 CERTIFICATION CLAUSE

This provision is required for all contracts that equal or exceed \$100,000.

CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

A16 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

A16.1 CONTRACT CLAUSE

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

A17 PROCUREMENT OF RECOVERED MATERIALS

A17.1 CONTRACT CLAUSE

PROCUREMENT OF RECOVERED MATERIALS

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

- a) The contract requires procurement of \$10,000 or more of a designated item during the fiscal year; or
- b) The contractor has procured \$10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

- a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;
- b) Fails to meet reasonable contract performance requirements; or
- c) Is only available at an unreasonable price.

A18 RIGHT TO INVENTIONS

A18.1 CONTRACT CLAUSE

RIGHTS TO INVENTIONS

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 CFR § 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

A19 SEISMIC SAFETY

A19.1 CONTRACT CLAUSE

A19.1.1 Construction Contracts

SEISMIC SAFETY

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

A20 TAX DELINQUENCY AND FELONY CONVICTIONS

A20.1 CERTIFICATION CLAUSE

CERTIFICATION OF OFFERER/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

Certifications

- 1) The applicant represents that it is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

- 2) The applicant represents that it is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If an applicant cannot comply with the two (2) above-listed certifications, the applicant is ineligible to receive an award unless the Sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

A21 TERMINATION OF CONTRACT

A21.1 CONTRACT CLAUSE

A21.1.1 Termination for Convenience

TERMINATION FOR CONVENIENCE (CONSTRUCTION & EQUIPMENT CONTRACTS)

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
2. Documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;
3. Reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
4. Reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

A21.1.2 Termination for Default

TERMINATION FOR CAUSE (CONSTRUCTION)

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes standard language for conditions, rights, and remedies associated with Owner termination of this contract for cause due to default of the Contractor.

A22 TRADE RESTRICTION CERTIFICATION

A22.1 SOLICITATION CLAUSE

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

- 1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);
- 2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and
- 3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

- 1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
- 2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
- 3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

A23 VETERAN'S PREFERENCE

A23.1 CONTRACT CLAUSE

VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within 49 U.S.C. § 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

A24 DOMESTIC PREFERENCES FOR PROCUREMENTS

A24.1 CERTIFICATION CLAUSE

CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

A25 PROHIBITION OF COVERED UNMANNED AIRCRAFT SYSTEMS (UAS)

A25.1 CONTRACT CLAUSE

The Bidder or Offeror certifies that they are aware of and comply with relevant Federal statutes and regulations, including those from the Federal Aviation Administration (FAA), for operating unmanned aircraft systems (UAS) in accordance, and in compliance with all related requirements in the FAA Reauthorization Act of 2024 (Public Law 118-63), section 936 (49 U.S.C. § 44801 note).

Contractor warrants that all UAS operations will be conducted in full compliance with all applicable Federal Aviation Administration (FAA) regulations, including but not limited to 14 CFR Part 107, and any other applicable local, state, or Federal laws and regulations.

Sponsors and subgrant recipients cannot use AIP grant funds to enter into, extend, or renew a contract related to covered unmanned aircraft systems (UAS). This includes both procurement and operational contracts, as well as contracts with entities that operate such systems.

SECTION III

FINAL SUBMITTAL

Special Provisions

for

REHABILITATE AIRFIELD LIGHTING VAULT AND REPLACE VAULT GENERATOR

**ILLINOIS PROJECT: ARR-4915
S.B.G. PROJECT: 3-17-SBGP-184/220/TBD**

at

**AURORA MUNICIPAL AIRPORT
AURORA, ILLINOIS**

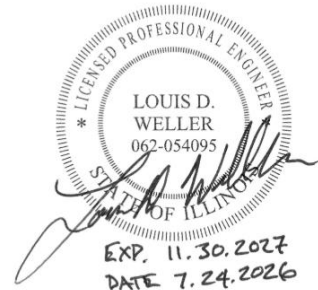
July 24, 2026

Prepared By:



CRAWFORD, MURPHY & TILLY, INC.
Consulting Engineers
550 North Commons Drive, Suite 116
Aurora, IL 60504

20092270.00



GENERAL

These Special Provisions, together with applicable Standard Specifications, Contract Requirements for Airport Improvement Project, Rules and Regulations, Payroll Requirements and Minimum Wage Rates which are hereto attached or which by reference are herein incorporated, cover the requirements of the State of Illinois, Division of Aeronautics, and the representatives of the City of Aurora for the improvements to the Aurora Municipal Airport, Aurora, Illinois.

GOVERNING SPECIFICATIONS AND RULES AND REGULATIONS

The “**Standard Specifications for Construction of Airports**”, State of Illinois, Department of Transportation, Division of Aeronautics, adopted March 22, 2023 shall govern the project except as otherwise noted in these Special Provisions. In the case of conflict with any part or parts of said specifications, the said Special Provisions shall take precedence and shall govern.

Specifications may be obtained at

<https://idot.illinois.gov/doing-business/procurements/construction-services/contractor-resources/aeronautics/design.html>

Where referenced within the Special Provisions, the Illinois Department of Transportation “Standard Specifications for Road and Bridge Construction” adopted January 1, 2023 shall apply.

INDEX TO SPECIAL PROVISIONS

ITEM	DESCRIPTION	PAGE NUMBER
------	-------------	-------------

Contents

PART 1 – GENERAL CONTRACT PROVISIONS.....	1
SECTION 40 – SCOPE OF WORK	2
SECTION 50 – CONTROL OF WORK	4
SECTION 60 – CONTROL OF MATERIALS.....	6
SECTION 70 – LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC	7
SECTION 80 – PROSECUTION AND PROGRESS.....	9
PART 2 – GENERAL CONSTRUCTION ITEMS	11
ITEM 105 – MOBILIZATION	12
ITEM 150 – RESIDENT ENGINEER FIELD OFFICE	13
PART 13 – LIGHTING INSTALLATION.....	14
ITEM 108 – INSTALLATION OF UNDERGROUND CABLE FOR AIRPORTS.....	15
ITEM 109 – INSTALLATION OF AIRPORT TRANSFORMER VAULT AND VAULT EQUIPMENT	19
ITEM 800192 – Airfield Lighting Control and Monitoring System (ALCMS)	36

PART 1 – GENERAL CONTRACT PROVISIONS

SECTION 40 – SCOPE OF WORK

40-05 MAINTENANCE OF TRAFFIC

ADD:

The Contractor shall be responsible for cleaning and maintaining all haul roads and use a pick-up type sweeper on all pavements and adjacent roadways utilized in hauling operations when material is tracked onto said pavement. **The Contractor shall have a sweeper on site and maintain all pavements clear of dirt and debris at all times or as requested by the Airport Manager, the Airport Manager's authorized representative or Resident Engineer.** If the Contractor fails to comply with the Standard Specifications, Contract Plans or these Special Provisions concerning traffic control, the Engineer shall execute such work as may be deemed necessary to correct deficiencies and the cost thereof shall be deducted from compensation due or which may become due the Contractor under the contract. The Contractor shall be responsible for supplying, maintaining and moving all barricades required for construction. The cost thereof shall not be paid for separately, but shall be considered incidental to the contract unit prices.

The Airport Manager, following consultation with the Resident Engineer, will give proper notice to the nearest Flight Service Station and the Airways Facilities Chief of the Federal Aviation Administration prior to the beginning of construction.

The Contractor shall consult with the Resident Engineer in arranging his construction operations. The Airport Manager will at all times have jurisdiction over the safety of air traffic during construction. Wherever the safety of air traffic during construction is concerned, his decisions as to methods, procedures and measures used shall be final, and any and all Contractors performing work must be governed by such decisions.

The Contractor shall not be entitled to any extra compensation due to delays or inconveniences caused by said necessary methods, procedures, and measures to protect air traffic.

The Airport Manager shall retain the authority to change the phasing of the work and/or the sequence of construction.

The Contractor shall not have access to any part of the active airfield (runway, taxiway or apron) for all equipment or personnel without the approval of the Airport Manager or the Airport Manager's authorized representative coordinated through the Resident Engineer.

ADD:

40-10 BARRICADES, WARNING SIGNS AND HAZARD MARKINGS

The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work. When used during periods of darkness, such barricades, warning signs and hazard markings shall be suitably illuminated. Unless otherwise specified, barricades, warning signs, and markings for hazards that are in the air operations area shall be a maximum of 18 inches high. Unless otherwise specified, barricades shall be spaced not more than 10 feet apart.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office).

Any cost for signage or traffic control shall be borne by the Contractor.

Barricades, as approved by the FAA, shall be provided per the details in the plan sheets. The barricades shall be lighted with steady burn omni-directional red lights supplemented with a 20" x 20" orange flag.

Barricades shall be placed as shown in the plans or as directed by the Resident Engineer or Airport.

The Contractor shall be responsible for supplying, maintaining and any moving of all barricades. Lights shall be maintained in proper working order. No separate payment will be made for supplying, maintaining and moving barricades but shall be considered incidental to the contract.

When the work requires closing an air operations area of the airport or portion of such area, the Contractor shall furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of FAA Advisory Circular 150/5340-1 (latest revision), *Standards for Airport Markings*.

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and his/her parked construction equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the airport in reasonable conformance to FAA Advisory Circular 150/5370-2 (latest revision), *Operational Safety on Airports During Construction*.

The Contractor shall identify each motorized vehicle or piece of construction equipment in reasonable conformance to FAA Advisory Circular 150/5370-2 (latest revision).

Mark and identify vehicles in accordance with AC 150/5210-5 (latest revision) *Painting, Marking and Lighting of Vehicles Used on an Airport*. When any vehicle is required to travel over any portion of the aircraft movement area (within the existing perimeter fence) and runway approach area, the vehicle shall be properly identified to operate in the area or provided with a flag on a staff attached to the vehicle so that the flag will be readily visible. The flag should be not less than 3-feet square consisting of a checkered pattern of international orange and white squares of not less than one foot on each side and displayed in full view above the vehicle. A flag or escort vehicle is not required for vehicles which have been painted, marked and lighted for routine use on aircraft movement areas. Any vehicle operating on the movement area during the hours of darkness should be equipped with an amber flashing dome-type light, in accordance with local and/or state codes.

The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work which requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their dismantling is directed by the Resident Engineer.

Open-flame type lights shall not be permitted within the air operations areas of the airport.

SECTION 50 – CONTROL OF WORK

50-05 COOPERATION BETWEEN CONTRACTORS

REVISE: The first sentence of the second paragraph to read:

The contractor shall plan and conduct his/her work so as not to interfere or hinder the progress of work being performed by other contractors or Airport personnel.

50-08 INSPECTION OF WORK

ADD:

The Contractor shall provide portable flood lighting for nighttime construction. Sufficient units shall be provided so that work areas are illuminated to a level of five horizontal foot candles. The lighting levels shall be calculated and measured in accordance with the current standards of the Illumination Engineering Society. Lights shall be positioned so as not to interfere with Airport operations.

50-10 LOAD RESTRICTIONS

ADD:

Access to the construction work area is limited to the haul routes as shown on the construction activity plan drawings. The use of existing airfield pavements by contractor construction traffic including all haul trucks is prohibited unless previously approved by the Airport Manager. Any damage to existing Airport pavement due to construction traffic operating beyond the approved work limits, hauling outside of the approved haul/access routes and construction traffic operating in prohibited areas shall be repaired by the Contractor at his own expense to the satisfaction of the owner.

The contractor shall coordinate construction hauling, construction access and load restrictions with the County Division of Transportation and the City of Waukegan. The Contractor shall be responsible for damage to any airfield pavement or public road caused by his construction operations. **Any damage to existing airfield pavements or public roads shall be replaced by the Contractor at his own expense to the satisfaction of the Owner.**

50-11 MAINTENANCE DURING CONSTRUCTION

ADD:

All existing pavement areas that are to remain open to aircraft traffic shall be kept clean to the satisfaction of Airport Manager and the Resident Engineer. At the request of the Resident Engineer or of the Airport, the Contractor shall provide a self-propelled, vacuum or regenerative (recirculating) air pavement sweeper, a pavement blower or tractor mounted "sweeper box". At a minimum, a pavement blower shall be kept on site at all times.

Material tracked onto public streets shall be removed continuously during the work.

No material capable of being blown onto airfield pavement will be allowed to be stored uncovered anywhere within the fence line, at any time during construction.

50-14 FINAL ACCEPTANCE

REVISE: The first sentence of the first paragraph to read as follows:

Upon due notice to the Resident Engineer from the Contractor of presumptive completion of the entire project, the charging of Contract Time shall be suspended, and the Engineer will make an inspection.

ADD: After the first sentence of the second paragraph:

The charging of Contract Time shall resume on the day following the inspection and shall continue until the remaining work, including the applicable requirements of Section 40-08, Final Clean-up, is completed to the Engineer's satisfaction.

50-16 PLANS AND WORK DRAWINGS

REVISE: The second sentence of the eleventh (11th) paragraph to read as follows:

Such review will not relieve the Contractor of the responsibility for complying with the contract document requirements or for any error that may exist in the submittal. The Contractor is responsible for the dimensions and designs of adequate connections, detail and satisfactory construction of all work.

REVISE: The 15th paragraph to read:

Shop drawing submittals that do not include the information below will be rejected and returned to the Contractor. Information to be included on shop drawing submittals shall conform to the following:

PROJECT LOCATION:	Aurora Municipal Airport
PROJECT TITLE:	Rehabilitate Airfield Lighting Vault and Replace Vault Generator
PROJECT NUMBERS:	Illinois Project No.: ARR-4915 AIP Project No.: 3-17-SBGP-184
CONTRACT ITEM:	(Pay Item Name & Number) i.e. AR109810 Generator
SPECIFICATION:	Section in the specifications i.e. 109-2.4 Natural Gas Generator
SUBMITTED BY:	(Contractor/Subcontractor Name)
DATE:	(Date of Submittal)

ADD: To the end of the 18th paragraph:

- d. "Rejected": Submittal shall not be used at the project site.

SECTION 60 – CONTROL OF MATERIALS

60-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS

REVISE: The third paragraph to read:

As a minimum, the Contractor shall provide, prior to delivery, statements (shipment tickets, source, certificate of analysis (COA), sample, etc.) as required by the current Illinois Department of Transportation, Bureau of Airport Engineering Manual for Documentation of Airport Materials or as requested by the Engineer of Airport Construction and Materials.

REVISE: The eleventh paragraph to read:

The Contractor shall furnish airport lighting equipment that meets the requirements of the specifications; and is listed in the current Federal Aviation Administration Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program and Addendum, that is in effect on the date of advertisement; and meets "Buy America" requirements.

ADD:

All materials for this item shall meet the requirements of the Buy American Preference. Contractor shall provide proof of 100% domestic materials prior to delivering materials to the site. Materials that are unable to meet this requirement shall be reported in the bid documents under Certifications Required by State and/or Federal Law, Buy American Certificate and the contractor shall provide material certifications including ASTM testing standards to the Resident Engineer before any material is placed.

60-03 CERTIFICATION OF COMPLIANCE/ANALYSIS (COC/COA)

ADD: After the sixth (6th) paragraph:

The Contractor shall certify all materials contained in the contract. Certification and documentation shall be submitted to the Resident Engineer and Project Engineer. It shall be the sole responsibility of the Contractor to ensure the delivery of adequate and accurate documentation prior to the delivery of materials. Materials incorporated into this project without approved certification and documentation will not be recommended for payment by the Resident Engineer. **It shall be the sole responsibility of the Contractor to provide certification that ALL materials to be used on the project meet the "Buy American" requirements.**

The certification shall be submitted as part of the shop drawing submittal.

If the Division of Aeronautics requires additional documentation, they shall request it through the Resident Engineer.

SECTION 70 – LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-08 PUBLIC CONVENIENCE AND SAFETY

ADD: at end of the Section:

The contractor shall provide, install and maintain any warning signs (trucks entering highway, etc.) as required by the County Division of Transportation and the Village of Sugar Grove and/or the responsible agency that maintains the roadway. The cost to the warning signage as required by the agency responsible for the roadway for the duration of the contract shall be at no additional cost to the contract.

70-16 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS

REVISE: The second paragraph as follows:

“ . . . , the approximate locations and owners have been indicated on the plans.”

ADD: After the eighth (8th) paragraph:

The following table includes contact numbers that may provide assistance for locating cable. The personnel listed in the table are in no way responsible for damage to existing utilities.

AURORA MUNICIPAL AIRPORT

Utility Service or Facility	Contact (Person)	Contact (Phone)
AT&T – Telephone Cables	J.U.L.I.E. (Joint Utility Locating Information for Excavators)	1-800-892-0123
ComEd - Electric Cables	J.U.L.I.E. (Joint Utility Locating Information for Excavators)	1-800-892-0123
Comcast – Cable Lines	J.U.L.I.E. (Joint Utility Locating Information for Excavators)	1-800-892-0123
NICOR - Gas Lines	J.U.L.I.E. (Joint Utility Locating Information for Excavators)	1-800-892-0123
FAA Control and Communication Cables	FAA Sector Office	
Village of Sugar Grove – Water Lines	Public Works	1-708-895-7190

REPLACE: paragraph eleventh (11th) with;

If, in the Contractor's opinion, additional assistance is needed to locate the utility service or facility, the contractor shall enlist the assistance of a qualified technician or professional utility location firm to accurately locate underground utilities or facilities prior to excavation. Prior to commencing this detailed location work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such owner of his/her plan of operation and request the presence of a representative of the owner to observe the work. Such notification shall be given by the most expeditious means to reach the utility owner's PERSON TO CONTACT no later than two normal business days prior to the Contractor's commencement of

operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the Engineer.

Only after the investigation has been made should the contractor begin excavation operations. Upon beginning these operations, the contractor shall use extreme caution in the methods utilized. The contractor shall utilize exploratory trenching or small tool excavation practices when beginning operations in critical areas to verify that the utilities are clear of the area of interest or to verify the location and depth of these facilities.

Any utility damaged by the Contractor shall be repaired by the Contractor to the satisfaction of the Owner and shall be at the cost of the Contractor. In the event that an existing utility is damaged during construction, all other work on the project shall be suspended until the utility is repaired. No additional time will be awarded to the Contractor for delays in the project due to damaged utilities. It is a high priority to the airport that all existing Airport utilities, unless otherwise noted in the plans, remain in good working condition throughout the duration of the project.

Special care shall be taken on all operations and particularly near pavement edges to avoid damage to edge lights and all underground electrical cable on the airport. The approximate location of existing underground cable is shown on drawings. Any airfield lights or cable that are broken and require replacement because of the Contractor's operations will be replaced by the Contractor at his/her own expense.

Any airfield cable repairs or replacement to any part of the electrical system made necessary by the Contractor's operations will be made by him/her in the manner specified in Sections 108 and 125 at no cost to the Airport. Cost of replacement to be borne by the Contractor shall include any expense incurred in locating as well as repairing or replacing damaged parts of the system by the owning agency.

70-25 CONTRACTOR'S RESPONSIBILITY FOR SAFETY DURING CONSTRUCTION

ADD:

- e. Review the requirements in AC 150/5370-2 (current edition) and comply with items listed as contractor's responsibility.
- f. Implement a CSPP and SPCD as required in AC 150/5370-2 (current edition) and ensure that construction personnel are familiar with operational safety procedures and regulations on the Airport.
- g. Provide a 24 hour point of contact that will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the Airport.
- h. Provide a safety officer/construction inspector(s) trained in airport safety to maintain the CSPP and SPCD and to monitor all construction activities.
- i. Restrict movement of construction vehicles to construction areas as flagging and barricading, erecting temporary fencing, or providing escorts, as appropriate.
- j. Ensure that no construction employees, employees of subcontractors or suppliers, or other persons enter any part of the aircraft operations area from construction site unless authorized.

SECTION 80 – PROSECUTION AND PROGRESS

80-04 LIMITATION OF OPERATIONS

ADD:

The Contractor shall not have access to any part of the active airfield (runways or taxiways) for any equipment or personnel without approval of the Airport Manager.

80-08 DETERMINATION AND EXTENSION OF CONTRACT TIME

ADD: After the fourth paragraph:

The Engineer will make charges against Contract Time after the presumptive completion of the entire project as provided for in Section 50-14, Final Inspection.

ADD: After the last paragraph of this section:

For this project, the following number of calendar days available for work per month has been assumed to be:

<u>Month</u>	<u>Workable Calendar Days</u>
January	0
February	0
March	0
April	0
May	15
June	17
July	17
August	17
September	16
October	16
November	14
December	0

For an extension of contract time due to inclement weather to be considered, the actual total number of calendar days available for work on controlling items must be less than the total number of workable calendar days assumed for the duration of the contract.

Requests for extension of contract time on calendar day projects caused by inclement weather, shall, as a minimum, be supported with National Weather Bureau data and project diaries. Requests for extension of contract time due to inclement weather will not be considered until after final acceptance.

As part of the request for contract time extension review, consideration may be given to how timely the Contractor prosecuted the work up to the point of the delays and the efforts by the Contractor to get back on schedule including the addition of labor or equipment and the extension of work hours and workdays.

No allowance will be made for anticipated profits.

80-14 SECURITY DURING CONSTRUCTION

As a minimum, the Contractor shall be responsible for security during construction as follows:

- (1) Visibly delineate his construction zone by placing a line of barricades or flagging around the entire work zone.
- (2) Keep construction personnel inside the work area delineated by barricades.
- (3) Ensure that construction personnel are familiar with security procedures and regulations on the Airport.
- (4) Restrict movement of construction vehicles to construction areas as flagging and barricading, erecting temporary fencing, or providing escorts, as appropriate or as shown in plans.
- (5) The Contractor shall be required to maintain security on the Airport as specified or as directed by the Airport.
- (6) The Contractor shall provide a complete list of personnel that will be employed while on site and update the list as needed. The contractor shall limit access to the AOA. The Contractor shall be responsible for monitoring the access gate during work hours. If the Contractor chooses to leave the gate open, then he shall monitor the gate to prevent unauthorized entries.
- (7) The contractor shall provide his own padlock to secure the gate used for access.

PART 2 – GENERAL CONSTRUCTION ITEMS

ITEM 105 – MOBILIZATION

BASIS OF PAYMENT

ADD:

Payment will be made under:

ITEM AR150520 MOBILIZATION – PER LUMP SUM.

ITEM 150 – RESIDENT ENGINEER FIELD OFFICE

DESCRIPTION

150-1.1

ADD:

The Airport will provide a location for the Field Office within proximity to the work areas. The Contractor shall be responsible for furnishing and maintaining the space as stated herein.

CONSTRUCTION METHODS

150-2.1

REVISE 450 square feet to 240 square feet in the first sentence.

DELETE (b) in paragraph 4.

ADD: the following in paragraph 4 under (h):

The copier shall be capable of scanning documents into pdf format for direct download into the resident engineer's computer. Ink replenishment and paper shall be supplied by the contractor. The scanning capabilities shall allow for creation of pdf documents for field books and plan sheets. A multiple sheet document feeder shall also be included for scanning multiple sheet documents such as field reports and catalog cuts.

BASIS OF PAYMENT

150-4.1

ADD:

Payment will be made under:

ITEM AR150510 ENGINEER'S FIELD OFFICE – PER LUMP SUM.

PART 13 – LIGHTING INSTALLATION

ITEM 108 – INSTALLATION OF UNDERGROUND CABLE FOR AIRPORTS

DESCRIPTION

108-1.1

ADD:

This item of work shall consist of the underground installation of 5000V cables and 600V in duct bank or conduits at the locations shown on the plans and in accordance with these specifications. When crossing existing utilities or as required by the Engineer, the Contractor shall hand dig the trenches for the proposed cables.

Contractor shall color code all airfield lighting cables and power distribution cable in ducts, manholes and handholes as directed by the Engineer. All costs of color-coding shall be considered incidental to the contract unit price for the associated item.

EQUIPMENT AND MATERIALS

108-2.1 GENERAL

ADD:

Airfield Lighting cable under this item shall be:

- L-824, 1 - 1/C #8, 5,000 V, Type C
- 350 KCMIL XHHW
- 2/0 600V Insulated Ground

108-2.4 CABLE CONNECTIONS

DELETE: The first and second sentence of paragraph **D. The Taped or Heat-Shrank Splice.**

ADD:

To further reduce the possibility of water (moisture) entrance into the connector between the cable and the field attached connector, heat shrinkable tubing with interior adhesive shall be applied over all cable connections.

The heat shrinkable tubing shall cover the entire L-823 connector. All connections shall be at manholes or light bases. No direct burial splicing will be allowed.

No splices will be allowed in the new cable unless at the end of a spool of cable. Splices due to termination points shall be done in splice cans, manholes, handholes and light cans. Any repairs necessary to cable damaged during installation shall be done at the Contractor's expense and shall consist of replacing the entire length of damaged cable between pull points.

In line connections for existing cables to be spliced or those which are cut during construction shall be repaired with the cast splice kit. The Contractor shall have a minimum of five (5) splice kits on the jobsite at all times for emergency repairs. Splice markers shall be installed over each splice in cables not to be abandoned. Cast splice kits shall be as specified in paragraph (a). All field splices shall be covered with a flexible polyolefin heat-shrinkable sleeve.

CONSTRUCTION METHODS

108-3.1 GENERAL

ADD:

Any damages to existing utilities as a result of the Contractor's operations shall be repaired immediately at his expense.

108-3.2 INSTALLATION IN DUCT BANKS OR CONDUIT

ADD:

The Contractor shall install conduit in trench between the lights and signs as shown in the plans.

The Contractor shall coordinate the cable trenching, placement and backfilling operations so that the cable will not be damaged by (a) the use of mechanized road building equipment in the area where underground cable is or will be in existence, and (b) stone or other foreign materials falling into the trench or mixing into the trench backfill materials.

Contractor shall provide a minimum of one loop of cable in all manholes, handholes and light bases.

108-3.3.a TRENCHING

REVISE 18" to 30" in the last sentence of the second paragraph.

108-3.5 SPLICING

DELETE: The first and second paragraph of Section **D. Taped or Heat-Shrank Splices.**

ADD:

Contractor shall use cast splicing kits as described in Article 108-2.4 for any splices made inside the electric handholes and manholes. Contractor shall provide shop drawing for splicing method and cast splicing kit. Contractor shall also leave minimum 30" of slack on each side of the cable being spliced.

Splicing of FAA cables shall be tested and approved by FAA.

Contractor may elect to install FAA approved "Complete Kit" or "Super Kit" with sealant and rubber boot in lieu of heat shrink connectors at no additional cost to the contract.

108-3.11 LOCATING OF EXISTING CABLES

ADD:

Contact Personnel are listed in Section 70-17 herein.

108-3.12 CONNECTION AND TERMINATION OF FIBER OPTIC CABLE.

ADD:

- a. Connectors: All fibers at each end of the cable shall have jumpers or pigtails installed of not less than 3 feet in length. All fibers at both ends of the cable shall have connectors installed on the jumpers. The mated pair loss, without rotational optimization shall not exceed 1.5 dB. The pull strength between the connector and the attached fiber shall not be less than 50 pounds.
- b. Identification and Labeling: The Contractor shall supply identification tags or labels for each cable. The labeling format shall be identified, and the complete record shall be provided to the Owner with

the final documentation. Each cable shall be identified with the type of signal being carried and termination points.

108-3.13 TESTING OF FIBER OPTIC CABLE.

- a. Contractor shall test all strands of existing fiber optic cable between ATCT and Vault. Connect and use spare (unused) fiber strands for new ALCMS.
- b. An optical time domain reflectometer (TDR) test shall be performed at 820 nanometers of the FO cable on the reel prior to installation. The optical time domain reflectometer shall be calibrated to show anomalies of 0.2 dB as a minimum. Test data shall be recorded and furnished to the Engineer. Cable tested with losses exceeding manufacturer's acceptable levels for new cable shall be rejected.
- b. A second time domain reflectometer test at 820 nanometers shall be performed on the FO cable after it is installed. The optical time domain reflectometer shall be calibrated to show anomalies of 0.2 dB as a minimum. If the optical time domain reflectometer test results are unsatisfactory, the FO cable segment is unacceptable.
- c. The unsatisfactory segments of cable shall be replaced with a new segment of cable at no cost to the Contract. The new segment of cable shall then be tested to demonstrate acceptability.

METHOD OF MEASUREMENT

108-4.1

REVISE: This Section to read as follows:

No measurement for payment will be made for trenching, excavation, backfill, dewatering and restoration regardless of the type of material encountered shall be included in the unit price bid for the work.

108-4.2

REVISE: This Section to read as follows.

The quantity for new cables between existing utility transformer, CT cabinet, ATS and main panelboard will not be measured for payment, all new cables installed in the project shall be included in the lump sum pay item for Vault Modifications.

The cost of routing the cable through duct, splicing, marking, trenching, backfilling, and all connections shall be included in the lump sum pay item for Vault Modifications.

The cost of removing cable as called out in the plans to make way for new cable shall not be measured separately for payment but shall be included in the lump sum pay item for Vault Modifications.

The cost of temporary cables and jumpers as required for construction phasing and to keep airfield lighting vault operational during construction shall not be measured separately for payment but shall be considered incidental to the lump sum pay item for Vault Modifications.

The quantity of new data cables installed in trench, duct bank, or conduit will not be measured for payment, all new data cables installed in project (vault and ATCT) shall be included in the lump sum pay item for ALCMS Modifications.

The cost of routing the data cables through duct, splicing, marking, trenching, backfilling, and all connections shall be included in the lump sum pay item for ALCMS Modifications.

The cost of removing data cables as called out in the plans to make way for new cable (vault and ATCT) shall not be measured separately for payment but shall be included in the lump sum pay item for ALCMS Modifications.

The cost of temporary cables and jumpers as required for construction phasing and to keep ALCMS and ATCT operational during construction shall not be measured separately for payment but shall be considered incidental to the lump sum pay item for ALCMS Modifications.

BASIS OF PAYMENT

108-5.1

REVISE: This Section to read as follows:

Payment will not be made for cables installed in this project, all cables shall be included in the lump sum pay item for Vault Modifications and ALCMS Modifications.

ITEM 109 – INSTALLATION OF AIRPORT TRANSFORMER VAULT AND VAULT EQUIPMENT

DESCRIPTION

109-1.1

ADD:

This item shall consist of removal of existing airfield lighting vault equipment, removal of existing natural gas generator with enclosure, installation of a new Electrical Vault equipment, regulators, natural gas generator with enclosure, electric service, automatic transfer switch and removal and replacement of ALCMS in accordance with these specifications and in accordance with the design and dimensions shown in the plans. The following major items of work will be included under this Item:

- A. Removal of existing airfield lighting vault electric service, power distribution equipment and associated cable/conduits.
- B. Removal of existing natural gas generator, weatherproof housing, CT cabinet, ATS and disconnect.
- C. Power Distribution System:
 - 1. Installation of Airfield Lighting Vault Electrical Service, including, but not limited to:
 - a. New 600A, 480/277V, Three Phase, 4-Wire Utility Service to Electrical Vault, with Utility-approved C.T Cabinet and Utility-approved Meter Base mounted at new generator enclosure.
 - b. Coordination with ComEd for removal and re-installation of secondary conductors in existing conduits.
 - 2. Installation of Electrical Vault building equipment, including, but not limited to:
 - a. New 600A, 480/277V, 3-Phase Main Distribution Panel.
 - b. New 150KVA, 480-120/208V, 3-phase transformer.
 - c. New 225A, 120/208V, 3-Phase Power Panel.
 - d. New 200A, 480/277V, 3-Phase Lighting Panel with 200A, 3-Pole lighting contactor.
 - e. New electric service conductors from ATS to main distribution panel.
 - f. Replacement of existing interior and exterior lighting with new LED luminaires.
 - g. Replacement of existing unit heaters with new unit heaters and thermostats.
 - h. Replacement of existing exhaust fan and louvers with new exhaust fans and louvers.
 - i. Installation of all new circuits for airfield lighting regulators.
 - j. Installation of new L-823 cabinet.
 - k. Installation of all new airfield lighting circuits from each new regulator to existing homeruns inside L-823 cabinet.
 - l. Removal of existing equipment and regulators.
 - 3. Installation of new 400kW/500kva natural gas generator with natural gas service, weatherproof housing and associated components.

4. Installation of new 600A, 480V, 3-Pole Automatic Transfer Switch (ATS) and service entrance rated disconnect inside generator housing.
5. Installation of (12) Regulator Indicating Light Assemblies, including, but not limited to, L-861 and L-861T LED edge lights, isolation transformers, plug cutouts, L-823 connectors, L-824 5KV cable and mounting panels.
- D. Installation of new L-829, (8)30 KW, (1)20 KW, (1)15 KW and (2)7.5 KW Ferroresonant Regulators for airfield lighting circuits.
- E. Removal and replacement of existing Airfield Lighting Control and Monitoring System (ALCMS) as specified in Item 800192.
- F. Installation of new L-854 Radio Controller, antenna, conduit, and power and control wiring.
- G. Connection of all new regulators to new power panel.
- H. Installation of temporary generator to keep airfield lighting vault operational during construction.

EQUIPMENT AND MATERIALS

109.2.1 GENERAL

REVISE: Paragraph (a) of the Specifications as follows:

Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall have the prior approval of the FAA and shall be listed in Advisory Circular (AC) 150/5345-53, Current Edition, Airport Lighting Equipment Certification Program, including the current Addendum. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the Engineer. The Contractor is responsible for using the latest editions of the referenced FAA Advisory Circulars, including any changes, in effect at the time of bidding. The advisory circulars may be obtained free of charge on the internet at the following address:

http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/

The Contractor shall ascertain that all lighting system components furnished by him (including FAA approved equipment) are compatible in all respects with each other and the remainder of the new/existing system. Any non-compatible components furnished by the Contractor shall be replaced by him at no additional cost to the airport sponsor with a similar unit, approved by the Engineer (different model or different manufacturer) that is compatible with the remainder of the airport lighting system.

All materials and equipment used to construct this item shall be submitted to the Engineer for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be

boldly and clearly made with arrows or circles (highlighting is not acceptable). Contractor is solely responsible for delays in project accruing directly or indirectly from late submissions or resubmissions of submittals.

The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Contractor's submittals (five (5) copies) shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

109-2.14 SQUARE DUCT

ADD: Square duct shall be NEMA 1, hinged cover or NEMA 3R hinged cover as detailed.

ADD:

109-2.21 NOT USED

109-2.22 FAA-APPROVED EQUIPMENT

The following FAA approved equipment is to be used on this project:

- a. L-829, Constant Current Regulator, 30KW, 20KW, 15KW and 7.5 KW, 480V, single phase primary, 6.6 AMP maximum, 3-Step or 5-step Brightness secondary. Regulator shall be Ferroresonant design. All-Solid-State design regulators are not acceptable. Regulator shall be a self-contained unit of the static type with no moving parts requiring attention or service. Internal input fusing shall be provided. Positive open circuit and over-current protection in the event of a fault shall be provided. All control circuitry shall be behind a hinged door for accessibility. Input and output lightning arrestors shall be included. Power factor capacitor shall be provided and provide a power factor of 96% or better, at full load and maximum brightness. All controls, including brightness relays, shall be in the air-filled control cabinet. Regulator shall have provision for both external 120V control and internal 120V control. Regulator shall be equipped with internally mounted remote control operated primary contractor with 120VAC operating coil.

New regulators shall be equipped with all required CT's and PT's to interface with existing Digital Control Interface units as required for a complete and operational L-890 and L-829 system. If regulators and ALCMS are manufactured by the same manufacturer, built-in ALCMS interface and Auto-Megging units with each regulator shall be acceptable.

- b. L-854 radio controller, 120V, with remote antenna, in NEMA 4 enclosure.
- c. Airfield edge lights (LED) and isolation transformers used as indicator lights as part of Regulator Indicating Light Assemblies at each regulator shall comply with requirements of Item 125 of these specifications.

109-2.23 OTHER ELECTRICAL EQUIPMENT

A. Automatic Transfer Switch, 600A, 480/277V, 3-Pole with the following features:

1. The automatic transfer switch shall be furnished with the necessary potential and frequency relays for sensing each phase of the commercial power source, control relays, time delays, contact to initiate engine starting and voltage and frequency relays for generator shall be provided and installed as shown on the plans.
2. The switch shall be rated as shown on the Transfer Switch Schedule for both normal and emergency sources. Frequency of operation shall be 60Hz. Insulation rating shall be 600 volts on all main contacts and current carrying parts. Where utilized, bus shall be silver or tin plated copper construction. The withstand capacity of the main contacts shall not be less than 20 times the continuous duty rating when coordinated with any molded case circuit breaker established by certified test data.
3. Enclosure shall be NEMA 1 unless otherwise specified.
4. The current rating shall be a 24 hour continuous rating when the switch is enclosed in non-ventilated enclosure. The switch shall be unaffected by accumulative operations and shall conform to NEMA Temperature Rise Standards.
5. The current rating shall be suitable for all classes of loads, i.e. resistance, tungsten, ballast and inductive loads as defined by U.L.
6. The switch shall be certified to meet the latest adopted transfer switch standards as defined by U.L.
7. All pilot devices and relays shall be of the industrial type with self-cleaning contacts and rated 10 amperes.
8. The automatic transfer switch shall be arranged to close a pilot contact for remote starting of an engine-generator three seconds (adjustable) after loss of normal source or three seconds (adjustable) after a drop in voltage on any phase to 80 percent or less. The load circuits shall not be disconnected from the normal source during the three second time delay period. When the standby generator is delivering not less than 90 percent of rated voltage and 95 percent of rated frequency, the load circuits shall be transferred to the emergency power source.
9. Upon restoration of the normal source to not less than 90 percent of rated voltage on and 95 percent of rated frequency on all phases, the load shall be re-transferred to the normal source after a time delay of from 2 to 25 minutes (adjustable). After retransfer to the normal source, the engine shall run unloaded for a cool-down period of 15 minutes (adjustable) and then automatically shut down and be ready to start upon the next failure of the normal source. If the standby plant should fail while carrying the load, retransfer to the normal source shall be made instantaneously upon restoration of the normal source.
10. The transfer switch shall consist of completely enclosed contact assemblies and a separate control logic panel. The contact assemblies shall be operated by a non-fused motor operator or stored energy mechanism and be energized only momentarily during transfer, providing inherently double throw switching action. Control power for all transfer operations shall be derived from the line side of the source to which the load is being transferred.
11. Transfer switch shall be positively interlocked both mechanically and electrically to prevent simultaneous closing of both sources under all operating conditions. Main contacts shall be mechanically locked in position in both normal and emergency positions.
12. Where noted in the Transfer Switch Schedule, three-phase four-wire transfer switches shall be true four-pole switched neutral type with all four poles for each source being fully rated and connected to a common shaft. The fourth (neutral) pole contacts shall be of identical construction as, and operate simultaneously

with, the main power contacts. Add-on or overlapping neutral contacts are not acceptable.

13. Inspection and replacement of all separate arcing contacts (moving and stationary) shall be possible from the front of the transfer switch.
14. An electronic sensing and control logic panel shall be separately mounted from the power switching portion of the transfer switch. The two sections shall be connected by control cables with plug-in connectors. The control section shall be capable of being disconnected from the power section for maintenance purposes.
15. The logic circuits shall utilize electronic components mounted on printed circuit boards to accomplish functions such as timing, time delays, and voltage and frequency monitoring. LED's shall be furnished to indicate the operation of each solid-state function. Modifications shall be available for field installation without voiding the UL label.
16. The Automatic Transfer Switch shall be UL listed and suitable for service entrance installation.
17. Automatic Transfer Switch feature requirements shall include as a minimum:
 - a. Time delay: Normal to emergency, adjustable
 - b. Time delay: emergency to normal, adjustable
 - c. Pilot light to indicate switch in normal position
 - d. Pilot light to indicate switch in emergency position.
 - e. Pilot lights marked "Normal Source" and "Emergency Source" to indicate that respective source voltages are available.
 - f. (Reserved)
 - g. Relay auxiliary contacts (2 NO and 2 NC) to indicate transfer switch position and the availability of each source.
 - h. Time delay engine start, adjustable
 - i. Time delay engine cool off, adjustable
 - j. Engine start (crank) contact
 - k. Delayed transition time delay, adjustable, to allow disconnection of load during transfer in either direction to prevent inrush currents due to out-of-phase switching of large inductive loads.
 - l. As a minimum, field adjustable three-phase under-voltage and under-frequency sensing shall be provided on Normal Source. Field adjustable single-phase under-voltage and under-frequency sensing shall be provided on Emergency Source.
 - m. Four-position test switch permitting four (4) modes of transfer switch operation:
 - TEST (simulates normal power outage)
 - AUTO (standard automatic operation)
 - OFF (de-energizes control relays and opens the engine start circuit for maintenance purposes)
 - ENGINE START (retains transfer switch in normal position and initiates a testing of the engine start circuit).
 - n. Automatic plant exercise timer, selectable Load/No-Load.
 - o. Compression or Mechanical lugs shall be furnished by the switch manufacturer for termination of all Normal, Emergency and Load cables by the Contractor unless Enclosed Transfer Switch is hard-bussed to adjacent equipment. Contractor shall coordinate all lug capacity and quantity for phase conductors, neutral conductors and ground conductors as indicated on the project drawings. All two-hole lugs shall utilize standard NEMA hole spacing.

- B. Service entrance rated circuit breaker, 600A, 480/277V, 3-Phase, 4-Wire, in NEMA 1 enclosure. Minimum short circuit rating shall be 65kA.

- C. New regulators shall be fitted with externally mounted distributed control and monitoring equipment (DCME). The DCME shall allow integration into new airfield lighting control and monitoring system (ALCMS). The DCME shall contain all equipment necessary (CT's and PT's) to provide L-829 monitoring capabilities and insulation resistance monitoring. The DCME shall contain a 7", or greater, full color display and communicate to the ALCMS using either redundant serial or redundant ethernet communication. All communication connections shall be able to be daisy-chained from unit to unit, to reduce cabling infrastructure requirements. DCME shall be the ADB Safegate ACE3, or approved equal by ALCMS manufacturer. Contractor shall acquire services of the ALCMS manufacturer to furnish and install new control/monitoring devices inside new regulators as required by the new ALCMS manufacturer. The installation of ALCMS components inside regulators shall not void regulator warranty.
- D. Main Distribution Panelboard, 600A, 480/277V, 3-Phase, 4-Wire, with 600A, 3P Main Circuit Breaker, in NEMA 1 enclosure, Square D, I-Line, or equivalent. Minimum short circuit rating shall be 65kA. Provide branch circuit breakers as indicated on the plans. Provide Surge Protective Device (SPD), SPD shall comply with U.L. 1449 "2nd Edition" and NEMA LS-1 - Low Voltage Surge Protection Devices. Minimum total Surge Current and Withstand Capability shall be 240 kA per phase, 120 kA per phase.
- E. Power Panelboard, 225A, 120/208V, 3-Phase, 4-Wire, with 225A, 3P Main Circuit Breaker, in NEMA 1 enclosure, Square D, or equivalent. Minimum short circuit rating shall be 30kA. Provide branch circuit breakers as indicated on the plans. Provide Surge Protective Device (SPD), SPD shall comply with U.L. 1449 "2nd Edition" and NEMA LS-1 - Low Voltage Surge Protection Devices. Minimum total Surge Current and Withstand Capability shall be 240 kA per phase, 120 kA per mode.
- F. Lighting Panelboard, 225A, 480/277V, 3-Phase, 4-Wire, with 200A, 3P Main Circuit Breaker, in NEMA 1 enclosure, Square D, or equivalent. Minimum short circuit rating shall be 30kA. Provide branch circuit breakers as indicated on the plans. Provide Surge Protective Device (SPD), SPD shall comply with U.L. 1449 "2nd Edition" and NEMA LS-1 - Low Voltage Surge Protection Devices. Minimum total Surge Current and Withstand Capability shall be 240 kA per phase, 120 kA per mode.
- G. Lighting Contactor, 3-pole 200A, 480V, electrically held lighting contactors in NEMA 1 enclosure with Hand-Off-Auto selector switch and photocell mounted on the exterior wall. Contactor shall be pre-wired, as manufactured by Square D or approve equal.
- H. L-823 Connector Cabinet, 48"w x 48"h x 12"d minimum, NEMA 1 enclosure with back panel and mounting unitstruts as detailed on the plans.

109-2.24 NATURAL GAS GENERATOR

- A. Natural gas generator shall have a minimum site capability of:
400 KW/500 KVA @ 0.8 power factor; 60 Hz
480/277 Volts
3 Phase
4 Wire.
Standby Rated
- B. System shall consist of a single generator set and include all controls, protection, wiring and accessories for automatic start-stop operation.

- C. Generator set shall include the capability of automatically controlling generator set operation. After starting, the unit will attain rated speed and voltage, and accept rated load. Generator set speed shall be controlled by the engine governor, while generator output voltage regulation shall be a function of the generator automatic voltage regulator. Manual adjustment of generator speed and voltage shall be provided.
- D. Generator set start-stop sequence shall be initiated manually or automatically by closing or opening of a contact. The control system shall automatically engage the cranking motor, sense engine starting speed, disengage the motor, arm the engine protection circuit, and accept load.
- E. Generator set shall immediately shut down in the event of over-speed, low oil pressure, and high water temperature. Cause of shutdown shall be indicated by a light annunciator. System logic shall prevent restart until fault is cleared.
- F. There shall be a provision for manual shutdown in the event of an emergency.
- G. Fuel shall be natural gas. Contractor shall provide modification to existing natural gas line from existing gas meter and gas regulator for the gas pressure required by the generator manufacturer.
- H. All components shall have been designed to achieve optimum physical and performance compatibility and prototype tested to prove integrated design capability. Prototype testing shall comply with the requirements of NFPA 110 for Level 1 systems. Each complete system shall have been factory fabricated, assembled, and production tested as performed by generator manufacturer.
- I. Each generator set shall be a complete unit, including, but not limited to, engine, generator, controls, exhaust, generator mounted main circuit breaker and radiator. All crankcase lubricant, coolant, full tank of fuel and other consumables are to be included with the unit before final acceptance.
- J. Generator set shall meet all U.L. 2200 requirements.
- K. The engine shall be a stationary, liquid cooled, four-cycle design. Units utilizing two-cycle engines will not be considered. Manufacturer shall maintain a nationwide support organization for parts and service.
- L. Unit shall be capable of providing full rated nameplate horsepower and kW under the following conditions simultaneously without derating:
 - 1. Altitude 700 ft above sea level.
 - 2. External ambient temperature of 110°F minimum
- M. The engine shall be equipped with air filters, fuel filters and pressure gauge, lubricating oil cooler, filters and pressure gauge, water pump and temperature gauge, service hour meter, flywheel and flywheel housing.
- N. The fuel system shall be integral with the engine. It shall consist of fuel filter, transfer pump, injection pumps, lines, and nozzles. The transfer pump shall deliver fuel under low pressure to individual injection pumps - one for each cylinder. The injection pumps shall be driven from the camshaft and simultaneously controlled by a rack and pinion assembly that is hydraulically actuated by signals from the engine governor. The pumps shall be of a variable displacement type to alter the volume of fuel delivered to the spray nozzles

according to load demand. The nozzles shall inject fuel directly into the cylinder in the optimum spray pattern for efficient combustion.

- O. The engine jacket water cooling system shall be a closed-circuit design with provision for filling, expansion and de-aeration. The cooling pump shall be driven by the engine. Auxiliary coolant pumps required for separate circuits after cooling shall also be engine driven. The cooling system shall tolerate at least 172.4 kPa (25 PSI) static head.
- P. Governor: The engine governor shall be of the electronic type. Speed "droop" shall be adjustable from 0 (isochronous) to 10%, from no load to full rated load. Steady State frequency regulation shall be +/- 0.25%, or better. Speed shall be sensed by a magnetic pickup off the engine flywheel ring gear. A provision for remote speed adjustments shall be included. The unit shall adjust fuel delivery according to exhaust smoke, altitude and cold mode limits. In the event of a DC power loss, the forward acting actuator will move to the minimum fuel position.
- Q. Engine Jacket Heater: Thermal tank-type water heater with integral thermostatic control, 3KW minimum, or as sized to maintain engine jacket water at 90°F (32°C), and suitable for operation on 120/240/480 Volts AC.
- R. The engine exhaust system shall be installed to discharge combustion gases quickly and silently with minimum restriction. System back pressure shall in no case exceed 6.7kPa (27" of water). Heavy walled piping such as Schedule 40 is preferred with radii of 90° bends at least 1 ½ times the pipe diameter. Piping shall be installed with 229 mm (9 in) minimum clearance from combustible material or incorporate appropriate insulation and shielding. Piping shall be supported and braced to prevent weight or thermal growth being transferred to the engine and flexible expansion fittings provided to accommodate thermal growth. Support dampers and springs shall be included where necessary to isolate vibration. Long runs of pipe shall be pitched away from the engine and water traps installed at the lowest point. Exhaust stacks shall be extended to avoid nuisance fumes and odors, and outlets cut at 45° to minimize noise.
- S. Provide hospital grade silencer, Maxim M-41 series, or equivalent. Inlet and outlet pipe shall be sized as required by engine generator manufacturer.
- T. The engine starting system shall include 24 volt DC starting motor(s), starter relay, and automatic reset circuit breaker to protect against butt engagement. Batteries shall be low maintenance, high output, lead acid type mounted near the starting motor. A corrosion resistant or coated steel battery rack shall be provided for mounting. Copper battery cables shall be furnished with the equipment and sized to satisfy circuit requirements. The system shall be capable of starting a properly equipped engine within 10 seconds at ambient temperatures greater than 22°C (70°F).
- U. Battery charger shall be current limiting type suitably sized for generator system and batteries furnished, but in no case less than 10 Amp continuous rated. Unit voltage shall match that used for by generator batteries and shall include both "float" and "equalize" features. Battery Charger shall be EnerGenius NRG by Stored Energy Systems (SENS), Longmont, CO, or equivalent. Battery Charger shall be furnished loose for installation and wiring by Contractor in nearby structure as shown on project drawings.
- V. The alternator shall utilize permanent magnet excitation system capable of withstanding a three-phase load of 300% rated current for 10 seconds during a fault condition.
- W. Generator shall be per ANSI/NEMA MG 1. Unit to be three phase, four pole design.

- X. Alternator Enclosure: ANSI/NEMA MG 1; open drip roof.
- Z. Voltage Regulation: Digital type, microprocessor based with fully programmable operating and protection characteristics. The regulator shall be capable of sensing true RMS in three phases of the alternator output voltage, or operate in single-phase mode.
- AA. Alternator Protection: The generator Main Circuit Breaker shall not be utilized solely for alternator protection. The manufacturer shall include a dedicated protection controller system such as Cummins/Onan AmpSentry or Caterpillar EMCP-II+ specifically designed to protect equipment against all fault and overload conditions.
- BB. Provide condensation space heaters for generator alternator windings.
- CC. Insulation shall be NEMA MG-1, Class H (150°C rise) minimum.
- DD. Motor starting capability shall be a minimum of 50 kVA. The generator set shall be capable of sustaining a minimum of 90% of rated no-load voltage with the specified kVA load at near zero power factor applied to the unit.
- EE. Generator set main circuit breaker shall be:
 - 600 Amps Frame
 - 600 Amps Trip
 - Thermal Magnetic Trip Type
 - 3 Pole
 - 42 kAmps Interrupting Capacity (AIC) at operating voltage.
 - 1. Include 24 VDC Shunt-Trip Coil
 - 2. Circuit breaker lugs shall be provided to accommodate the number and size of load cables as detailed on the drawings. Contractor shall coordinate with supplier to meet this requirement.
- FF. Spring type vibration isolators, Korfund Series LK or equivalent, shall be provided in suitable size and quantity for the equipment.
- GG. The engine generator controls shall include the following features as a minimum:
 - 1. Digital Display Indication of:
 - a. AC voltage (L-L)
 - b. AC amps
 - c. System Diagnostics
 - d. Frequency
 - e. DC voltage
 - f. Coolant temperature
 - g. Oil pressure
 - h. Revolutions per minute (RPM)
 - i. Hours Run
 - 2. Operator Controls
 - a. Auto Start/Stop
 - b. Emergency Stop
 - c. Lamp Test
 - d. Cycle Crank
 - e. Voltage Control
 - f. Cool-down Timer

while the roof shall be sloped to encourage runoff. Sheet metal with minimum thickness of 1.9 mm for the enclosure and doors shall have no burrs or sharp edges. Inside and outside surfaces shall be finished with a baked electrostatically applied powder coat paint. Exposed fasteners shall be zinc plated with door hinges and latches either painted or stainless steel.

4. Paint shall be manufacturer's standard color or as selected by the owner.
5. Enclosure shall be furnished with sound attenuation panels and enclosed exhaust system to achieve maximum of 73db at 23 feet.
6. In order to minimize rodent damage, housing shall be constructed such that the exterior openings sufficiently small to prevent rodent entry.
7. Generator enclosure shall be furnished with pre-installed interior lighting, thermostatically controlled unit heater, convenience receptacles, disconnect, 480-120/240V transformer and lighting panelboard. Lighting panelboard and transformer shall be sized to feed all generator auxiliary and enclosure circuits.
8. Provide a fire extinguisher within an enclosure no greater than 30 feet of the generator/tank with a rating of not less than 40B. 2018 IFC Section 906.3.2.
9. All pathways required for egress shall be provided with emergency illumination to at least an average of 1 foot candle (11 lux) and a minimum at any point of 0.1 foot candle (1 lux) measured at floor level. 2018 IFC Section 1008.3.5.
10. Provide exterior indicator lights when generator is running or alarm as shown on the plans.
11. Contractor shall verify and coordinate with generator enclosure manufacturer for size of enclosure to be installed on existing concrete pad and existing conduit stubs to align with new electrical equipment.

109-2.25 UTILITY SERVICE

Work included in this section is labor, equipment and materials necessary to provide a complete and operational service entrance as specified herein. This work shall be coordinated with serving utility and shall be considered incidental to the power distribution system for the new vault. Major work items to be performed:

1. Removal and replacement of secondary conductors as shown on the plans.
2. Installation of Utility-approved Metering C.T. cabinet.
3. Installation of Utility-approved meter base.
4. Additional work as required by serving electric utility shall be considered incidental to this specifications section.

NOTE: Any charges by the Utility will be paid for separately by the Owner and are not part of the bid item.

109-2.26 SHOP DRAWINGS

In addition to the requirements of Section 60 Paragraph 60-09 of the General Provisions of Division 1 of these specifications, shop drawings shall also be submitted for review for all items specified in Paragraphs 2.2 through 2.24.

CONSTRUCTION METHODS

CONSTRUCTION OF VAULT AND PREFABRICATED METAL HOUSING

109-3.1 GENERAL

ADD:

All electrical equipment shall be installed in conformance with applicable sections of NPFA 70 - National Electrical Code, respective equipment manufacturer's directions, as detailed on drawings and as specified herein. Any installations which void U.L. listing (or other third party listing) and/or manufacturer's warranty of a device or equipment shall NOT be permitted.

In installation of this work, Contractor shall comply in every respect with requirements of National Electrical Code (NEC), National Board of Fire Underwriters, and any state and local requirements, laws and ordinances as may be applicable.

If, in opinion of the Contractor, there is anything in drawings or specifications that will not strictly comply with above laws, ordinances and rules, the matter shall be referred to the attention of the Owner's representative for a decision before proceeding with that part of the work. No changes on drawings or in specifications shall be made without the full consent of Owner's representative.

Contractor shall obtain and pay for all licenses, permits and inspections required by above laws, ordinances and rules for entire electric wiring job called for in these specifications and accompanying drawings.

Drawings and specifications are intended to be descriptive only, and any error or omissions of detail in either shall not relieve Contractor from obligations thereunder to install in correct detail any and all materials necessary for complete and operating electrical systems to extent shown on drawings and described in this specification.

Contractor shall, during progress of job, record any and all changes or deviations from original drawings, and, at completion of project, shall deliver to Owner's representative a single marked-up set of "as-built" drawings.

This Contractor shall prepare shop drawings for all parts of his work. Before commencing any work or providing any material, Contractor shall submit for approval all drawings relating to construction, arrangement or disposition of equipment entering into contract, and show complete equipment with manufacturer's specifications of same.

Shop drawings shall be fully descriptive of all materials and equipment to be incorporated into this project. Contractor shall carefully check all submitted shop drawings, making sure they are complete in all details and cover specific items as hereinafter specified. No material or equipment shall be allowed at the site until shop drawings approved by the Engineer are received by the Resident Engineer at the site.

109-3.3 ROOF

DELETE: This section.

109-3.10 CONNECTING NEW ALCMS TO REGULATORS

ADD:

The contractor shall provide the necessary coordination between the constant current regulator manufacturer and the ALCMS manufacturer for the require control system connections. This work may include meetings, development of control wiring schematics, installation of control wire, terminations, calibration of CCRs and all other tasks needed to provide a complete operating system. The Contractor shall pay all costs associated with this work. Contractor shall acquire services of the ALCMS manufacturer to furnish and install new control/monitoring devices inside new regulators as required by the new ALCMS manufacturer. The installation of ALCMS components inside regulators shall not void regulator warranty.

If regulator and ALCMS are from same manufacturer, the built-in ALCMS interface units inside regulators shall be acceptable in lieu of external interface units.

INSTALLATION OF EQUIPMENT IN VAULT OR PREFABRICATED METAL HOUSING

109-4.4 DUCT AND CONDUIT

ADD:

The series circuit wireway shall be stand-off mounted to permit conduits to be routed to wireway below.

109-4.6 MARKING AND LABELING

ADD:

- (c) Nameplates and legend plates shall be engraved three-layer laminated plastic, black letters on white background. Legends (wording) shall be as detailed on drawings or as directed by Owner's representative.
- (d) All wire markers installed on electrical equipment shall be weatherproof and water resistant. Wire identification labeling, whether factory applied or written in the field, shall utilize an adhesive that does not soften or weaken over time. Sleeve or tubing type labels may be utilized as an alternate. Paper adhesive-backed wire markers will be rejected and replaced at the Contractor's expense. Wire marker labels shall be as manufactured by Brady, or equivalent.

ADD:

109-4.9 GENERATOR INSTALLATION

- A. Installation shall comply with applicable state and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions and instructions included in the listing or labeling of UL listed products. Contractor shall coordinate with utility company to upgrade (if required by utility) existing natural gas service to feed new generator.
- B. Equipment shall be provided and installed in conformance with all applicable State, County and Local requirements, rules and regulations.
- C. Contractor shall pay for all consumables (oil, anti-freeze, fuel, etc.) for start-up and load-bank testing as well as topping off same after commissioning of equipment prior to acceptance by owner.

- D. Contractor shall install new generator and housing on existing concrete pad as detailed on the plans. Verify concrete pad dimensions and proposed generator housing dimensions to provide required clearance and alignment of existing underground conduits. The existing conduit stub location for generator output, auxiliary circuits and annunciator panel communications shall be coordinated with the generator manufacturer. Provide minimum of 3'-0" around the generator.
- E. The complete installation shall be tested for compliance with the specification following completion of all site work. Factory performed load-bank testing of generator set prior to shipment will not be considered as an alternative in meeting on-site load bank testing requirements. Testing shall be conducted by representatives of the manufacturer, with required fuel supplied by Contractor. The Engineer shall be notified in advance and shall have the option to witness the tests. Engine generator manufacturer/supplier shall provide testing and startup services and shall provide load bank for testing of generator under load.
- F. Inspection:
 - 1. Carefully inspect wiring, fuel system, exhaust system, duct and ventilation openings prior to operating generator set.
 - a. Ensure completeness of installation and that all connections are sound and leak free.
 - 2. Carefully inspect generator set.
 - a. Inspect belts for proper tension
 - b. Tighten all loose bolts to proper torque.
 - c. Remove all shipping tags and covers where appropriate.
 - d. Verify proper levels of coolant, lubricating oil and fuel are present.
- G. Cleaning:
 - 1. Prior to starting generator set thoroughly clean the following as a minimum:
 - a. Housing of dust and debris to prevent pick up by air intake.
 - b. Generator set of all dirt, dust and debris.
 - c. Fuel oil, lubricating oil, or coolant spills and residues.
 - d. All associated equipment in housing.
- H. Preparation:
 - 1. Verify fuel levels in tanks; ensure that adequate supply of fuel is available.
 - 2. Inspect battery condition; verify full charge.
 - 3. Prime engine fuel intake manifold.
- I. Acceptance Test:
 - 1. Make all specified submittals.
 - 2. Demonstrate functional capability at site under manual and automatic modes of operation.
 - a. Verify that all controls work and that interfaces with fuel system and transfer switches are properly operating.
 - 3. Demonstrate ability of unit to automatically start and accept load by transfer switch command within 10 seconds.
 - a. Record all delay times.
 - 4. Perform full-load test using load bank sufficient to provide 100% specified KW rating (1.0 Power Factor) for 2-hour test period.
 - a. Start generator system and, upon reaching rated speed, pick up 100% load on single step.

- b. Record voltage, amperage, frequency, oil pressure and engine temperature at beginning of test and each ½ hour thereafter.
 - c. Furnish test report to Engineer.
- 5. Apply manufacturer's touch-up paint to any surfaces scratched or otherwise blemished during shipment or installation.
 - 6. Correct any deficiencies found during testing, retest if required.
 - 7. Verify that system is operating as specified before concluding tests.
 - 8. Top-off any liquids (fuel, oil, coolant) before acceptance.
 - 9. Instruct user personnel on the operation and maintenance of unit.

109-4.10 EXISTING GENERATOR AND VAULT EQUIPMENT REMOVAL

The Contractor shall remove and dispose of existing airfield lighting vault equipment as shown on the plans. Existing regulators, generator and generator housing shall be removed and salvaged. Existing L-854 radio controller and antenna shall be removed and salvaged for spare parts. All other equipment shall be removed and disposed of offsite by the Contractor. If the Airport does not want any of the removed materials then the Contractor shall dispose of off airport property at no additional cost to the contract.

109-4.11 TEMPORAY ELECTRIC SERVICE AND REGULATOR

The Contractor shall furnish, operate and maintain a temporary generator to keep airfield lighting vault operational during construction

The Contractor shall be responsible for maintenance of the temporary generator during the entire vault construction period. Temporary generator shall be removed after the new vault power distribution and airfield lighting circuits are energized and tested and ready for operation.

METHOD OF MEASUREMENT

109-5.1

DELETE: This section.

ADD:

VAULT MODIFICATIONS

The quantity of vault modifications to be paid for shall be lump sum. This item shall consist of removals of all vault equipment including regulators, furnishing and installation of all vault electrical power distribution equipment, including but not limited to panelboards, transformer, lighting, wireways, conduits/conductors, electric service, cable/conduit/duct to existing utility transformer, L-854 radio controller, photocell, mounting panels, L-823 cabinet, indicator lights, ground grid, connections of all existing circuits, lighting contactors, temporary generator and disconnect, except for the regulators and generator, and all labor and materials necessary for a complete and accepted installation.

109-5.2

DELETE: This section.

ADD:

REGULATORS

The quantity of regulators to be paid for shall consist of furnishing and installation of regulators of each size, and all labor and materials necessary for a complete and accepted installation.

109-5.3

DELETE: This Section.

ADD:

NATURAL GAS GENERATOR

The quantity of new Natural Gas Generator and weatherproof housing to be paid for under this item shall for each generator furnished and installed. This item shall include all the work associated with new 400KW/500KVA natural gas generator installed on the existing concrete pad, including but not limited to installation of new natural gas line and new conduits, ATS, service entrance rated disconnect and lighting. This item shall also include installation of annunciator panel, battery charging system, engine block heater, exhaust system and required cable/conduits, modifications, testing, commissioning and training for a complete and operational natural gas generator as specified.

109-5.4 REMOVE EXISTING GENERATOR AND ASSOCIATED COMPONENTS

The quantity of Remove Generator to be paid for shall be lump sum. This item shall consist of the disconnection and removal of existing natural gas generator, weatherproof housing and all equipment associated with the existing generator, removal of existing ATS, disconnect and conductors and other components necessary for the new installation as detailed on the plans, and all labor and materials necessary for a complete and accepted removals.

109-5.5 ALCMS MODIFICATIONS

Payment will not be made for the ALCMS work included in Item L-109, It shall be included in the Lump Sum pay item for ALCMS listed in Item 800192.

BASIS OF PAYMENT

109-6.1

ADD:

Payment will be made under:

ITEM AR109210 – VAULT MODIFICATIONS – PER LUMP SUM

ITEM AR109311 – 7.5 KW REGULATOR, STYLE 1 – PER EACH

ITEM AR109331 – 15 KW REGULATOR, STYLE 1 – PER EACH

ITEM AR109341 – 20 KW REGULATOR, STYLE 1 – PER EACH

ITEM AR109361 – 30 KW REGULATOR, STYLE 1 – PER EACH

ITEM AR109362 - 30 KW REGULATOR, STYLE 2 – PER EACH

ITEM AR109810 – GENERATOR – PER EACH

ITEM AR109903 – REMOVE REGULATOR – PER EACH

ITEM AR109908 – REMOVE GENERATOR – PER LUMP SUM

ITEM 800192 – Airfield Lighting Control and Monitoring System (ALCMS)

GENERAL

Background

- A. The Airfield Lighting Computer and Monitoring System (ALCMS) shall combine state-of-the-art programming intelligence with high quality industrial strength components.
- B. The system shall represent the leading edge in aviation lighting technology with innovative touchscreen control stations, distributed control and monitoring, and powerful database storage and retrieval systems.

Qualifications

- A. The ALCMS manufacturer shall be ISO 9001 certified and provide a copy of the ISO certification during the submittal process.
- B. The ALCMS manufacturer shall be listed in the FAA Approved Equipment List, AC 150/5345-53 (current edition) as a FAA approved supplier of L-890 Airfield Lighting Computer and Monitoring Systems in accordance with AC 150/5345-56 (current edition) and be a FAA approved supplier of L-827/L-829 Constant Current Regulator Monitors in accordance with AC 150/5345-10 (current edition).
- C. The ALCMS manufacturer shall have a minimum of five (5) years of experience in computerized airfield lighting control and monitoring systems and shall have installed at least five (5) advanced control and monitoring systems of similar size and complexity to the one specified herein.

Project Scope

- A. The ALCMS Manufacturer shall furnish and commission a complete and functional computerized distributed control and monitoring airfield lighting system based on an industry standard Ethernet network.
- B. This project shall include software, programming, computers, manuals, on-site commissioning, on-site testing, on-site training and any other materials, tools and equipment to provide a fully functional system to the satisfaction of the owner.
- C. The replacement of existing ALCMS at Aurora Municipal Airport shall include the following and not limited to:
 - a. Field survey and coordination of existing Airfield Lighting Vault and Air Traffic Control Tower (ATCT).
 - b. Furnishing and installation of new FAA approved L-890 ALCMS to control and monitor airfield lighting circuits.
 - c. Furnishing and installation of ALCMS enclosures, touchscreens, printers and components as shown on the plans and specified herein.
 - d. Furnishing and installation of redundant data network at Vault to control and monitor airfield lighting circuits.
 - e. Installation and connection of new fiber optic network to new ALCMS at all ALCMS locations.
 - f. Furnishing and programming of roaming laptop for new ALCMS.
 - g. Furnishing and installation of interface units to control and monitor existing stand-by generators and utility power.
 - h. Furnishing and installation of interface units to control and monitor existing beacon from the ATCT.
 - i. Furnishing and installation of power required for ALCMS at all locations as shown on the plans and specified herein.
 - j. Complete programming, testing, and commissioning of the new ALCMS.
 - k. Coordination with FAA for touchscreen layout and approvals.
 - l. Coordination with FAA for all work at ATCT associated with ALCMS removal and replacement.

- m. (2) 8-Hour training for FAA staff, Airport maintenance and supervisors.
- n. Removals of existing Airfield Lighting Control System (ALCS) equipment and associated conductors from all locations as shown on the plans.

Project Coordination

- A. The ALCMS Manufacturer shall provide experienced and qualified Engineering, Sales and Service staff to support the contractor and airport throughout the installation and life of the system.
- B. The project shall follow this basic cycle of events:

	Milestone	Description
1.	Submittal	The ALCMS Manufacturer shall submit ALCMS specifications to the contractor.
2.	Submittal Review and Approval	Submittal is reviewed by the contractor, airport, and engineer(s).
3.	Production Release	The ALCMS Manufacturer shall release approved system to manufacturing.
4.	Demo CD 35% Software Completion	The ALCMS Manufacturer shall send to the contractor, airport, and engineers a Demo CD of the planned layout of the touchscreen that will be used for the control of the ALCMS system.
5.	Production	System is manufactured.
6.	Production Testing	System is tested by the ALCMS Manufacturer.
7.	Factory Acceptance Testing	System is available for Factory Acceptance Testing (FAT) witnessed by airport/owner.
8.	Shipment of system	Approved system is shipped to installation site.
9.	Installation	Contractor installs equipment and completes external wiring.
10.	Commissioning	The ALCMS Manufacturer shall arrive at installation site to complete commissioning of system and verify contractor installation and wiring.
11.	System Readiness Check	The ALCMS Manufacturer shall perform a system readiness check to verify proper operation of all equipment prior to cut over.
12.	System Cut-over	The ALCMS Manufacturer and Contractor shall cut over the new system and bring it on-line and operational.
13.	System Acceptance Testing	System is available for System Acceptance Testing (SAT) which shall be witnessed the by airport/owner and/or engineer.
14.	Manuals / As-Built drawings	The ALCMS Manufacturer shall issue operator manuals, maintenance manuals and ATC manuals and final as-built drawings.
15.	On-Site Training	The ALCMS Manufacturer shall complete on-site training of maintenance, Operations, and ATC personnel (Two 8-Hours Sessions)
16.	Final Owner Acceptance	Upon completion of all contractual requirements, system is accepted in writing by the airport/owner.
17.	Warranty and Support	The ALCMS Manufacturer shall provide warranty and support per the contractual requirements.

Factory Acceptance Test (FAT)

- A. Before shipment, the ALCMS system shall be assembled as an operating system at the ALCMS Manufacturer's test facilities.
- B. The ALCMS Manufacturer shall make the FAT available for representative(s) of the airport/owner and engineer to witness the testing of the system, if requested by the COTR.
- C. At a minimum, the FAT shall allow for one (1) day of testing and review but may require additional time depending on the results of the testing.
- D. The ALCMS Manufacturer shall incur the costs of setting up and performing the test excluding airport/owner and engineer related travel and accommodations.
- E. During the FAT, minor software comments shall be finalized and incorporated into the final system.

Contractor Installation Requirements

- A. The installing contractor shall be responsible for the physical installation of all associated ALCMS components as shown on the plans and specified in Item L-109. At a minimum, this includes the computer cabinets, Touchscreen control stations and Distributed Control and Monitoring Equipment (DCME).
- B. The Contractor shall furnish and install pedestal and equipment mounting plates for DCME units as shown on the plans.
- C. The Contractor shall furnish and install conduits and cable trays for ALCMS power and communications in the Vaults and ATCT as shown on the plans.
- D. The Contractor shall furnish, install, relocate, connect and test all equipment, equipment accessories, conduit cables, wires, buses, grounds and support necessary to ensure a complete and operable electrical distribution facility for the airport lighting system as specified in the submittal package.
- E. The equipment installation and mounting shall comply with the requirements of the National Electrical Code and local code agency having jurisdiction.

Wire and Connections

- A. The Contractor shall make all necessary electrical connections at each location in accordance with the ALCMS manufacturer's wiring diagrams.
- B. All wires called out in the drawings associated with equipment that is to be controlled or monitored should be pulled, terminated and dressed at the appropriate terminal blocks and at the associated equipment.
- C. The Contractor shall leave sufficient extra wire length on each control/monitoring lead to make future changes in connections at the terminal block.
- D. The Contractor shall connect new ALCMS to new fiber optic network to the new ALCMS. Furnish and install new fiber optic patch panels, fiber optic jumpers and new interior fiber optic cable for connections as shown on the plans and specified herein.
- E. The Contractor shall furnish and install new Radio Communication Network between ATCT and Vault.

Marking and Labeling

- A. All equipment, control wires, fiber optic cables, terminal blocks, etc., shall be tagged, marked or labeled as specified below:
 - 1. Wire Identification: The Contractor shall furnish and install labels or identifying tags on all control wires at the point where they connect to the control equipment or to the terminal blocks.
 - 2. Wire labels, if used, shall be of the self-sticking, pre-printed type and of the manufacturer's recommended size for the wire involved. Identification markings designated in the plans shall be followed.
 - 3. Tags, if used, shall be nonferrous metal or plastic. Each tag shall be securely tied to the proper wire by a nonmetallic cord or plastic wire tie.

Installation of Data Cables

- A. The Contractor shall install, terminate and test all data cables required for the project. This includes all of the following components: Data cables (copper and fiber), terminal cabinets and jumper cables.
- B. All associated data cables shall be tested upon completion of the cable installation and termination of connectors.
- C. Tests shall include verification of point-point continuity of each wire.
- D. All test data shall be recorded and included in a test report that shall be submitted to the COTR for approval.
- E. Commissioning of the system shall not begin until all test reports are submitted and approved, and a copy provided to ALCMS Manufacturer.

Contractor Fiber Optic Communication Equipment Installation

- A. The Contractor shall install, terminate and test all fiber optic communications required for the project, excluding fiber optic cable network between vault and ATCT. This includes all the following components:
 - 1. Fiber optic cable as specified in L-108
 - 2. Fiber optic patch panels
 - 3. Fiber optic jumper cables
 - 4. Fiber connectors / couplings
 - 5. Fiber junction boxes
- B. Installation of the fiber optic communication equipment shall be done by a trained and qualified fiber optic specialist.
- C. The qualifications of the company and specialist that installs the fiber optic equipment shall be submitted to the COTR for approval.
- D. All associated fiber optic equipment including fiber cables, splices and jumper cables shall be tested upon completion of the fiber cable installation and termination of connectors.
- E. Tests shall include verification that the dB loss is within acceptable limits versus the distance of the fiber pull.
- F. All test data shall be recorded and included in a test report that shall be submitted to the COTR for approval.
- G. Commissioning of the system shall not begin until all test reports have been submitted and approved.
- H. Existing unused fibers shall be tested and used for new ALCMS to keep existing ALCMS operational during installation, testing and commissioning of the new ALCMS.

Training Audio/Video Recording

- A. All audio/video recording of all ALCMS related training sessions are the responsibility of the Contractor.
- B. The ALCMS Manufacturer shall coordinate training dates with the Contractor and the Contractor shall provide all required video recording personnel and video equipment necessary to video tape each training session.
- C. All video recording should be completed in accordance with the contract specifications.
- D. The Contractor is responsible for coordination and scheduling all training for both the FAA Air Traffic Controllers and Maintenance personnel.
- E. All FAA ATC training must be completed within thirty days (30) from the time the system is rolled over and is to be 'LIVE' and operational.

ALCMS Manufacturer Commissioning

- A. The ALCMS Manufacturer shall perform the following installation and commissioning tasks:
 - 1. Verify Contractor connections including power, control and monitoring.
 - 2. Verify proper labeling of equipment.
 - 3. Verify communication connections.
 - 4. Perform system testing including control, monitoring and diagnostics.
 - 5. Training on ALCMS related equipment.

6. Perform System Acceptance Testing (SAT).

System Acceptance Test (SAT)

- A. Following the final installation and commissioning of the system, the ALCMS Manufacturer shall perform a demonstration of the system performance. This demonstration shall include the following:
 1. Lighting control functions
 2. Monitoring functions
 3. Alarm functions
 4. Print and Display functions
- B. The ALCMS Manufacturer shall develop a SAT test plan in accordance with the specifications and issue this to the contractor for approval from the airport engineer.
- C. The SAT shall be witnessed by owner representatives, the contractor and the engineer.

Manuals

Maintenance Manuals

- A. The ALCMS Manufacturer shall provide six (6) hard copies of the operation and maintenance manuals that are hard-covered and suitable for daily operation and maintenance of the system. The manuals shall include the following information:
 1. Operational overview and system description
 2. Graphical User Interface (GUI) Screen operation
 3. System Block Diagram
 4. Detailed external wiring diagrams (Electrical Contractor wiring)
 5. Detailed input/output terminal diagrams
 6. Detailed assembly drawings and wiring diagrams
 7. Original Equipment Manufacturer (OEM) Manuals
- B. The manuals shall be spiral bound or supplied in 3-ring binders. The cover of each binder shall be labeled with all project-related information.

FAA Air Traffic Control Manuals

- A. The ALCMS Manufacturer shall provide six (6) hard copies of the operation manuals for Air Traffic Controller (ATC) use. The manuals shall be hard-covered and suitable for daily operation of the system. At a minimum, the manuals shall include the following information:
 1. Touchscreen operation (graphical user interface)
 2. Touchscreen maintenance (i.e. calibration)
- B. The manuals shall be spiral bound or supplied in 3-ring binders. The cover of each binder shall be labeled with all project-related information.

As-Installed Drawings

- A. The ALCMS Manufacturer shall provide six (6) hard copies of As-Installed drawings after system acceptance. The As-Installed drawings shall include the following information:
 1. System Block Diagram (1-line drawings)
 2. System External Wiring Diagrams
 3. Assembly Drawings
 4. Assembly Wiring Diagrams
- B. The As-Installed drawings shall be 11" X 17" in size and shall be bound or supplied in 3-ring binders. The cover of each binder shall be labeled with all project-related information.

On-site Training

- A. The ALCMS Manufacturer shall provide to the contractor a final training course syllabus and training schedule thirty (30) days before on-site training.

- B. All training sessions shall be held in a facility provided by the airport. This facility should have tables, chairs, projection screen and sufficient space to lay out manuals and drawings. The ALCMS Manufacturer shall provide all required visual aids and projectors.

FAA Training

- A. FAA Air Traffic Control should designate a Training Coordinator that shall be responsible for scheduling and organizing on-site training for their personnel. In addition, this coordinator shall be responsible for training other personnel that were absent or unable to attend the training sessions.
- B. The ALCMS Manufacturer shall provide two (2), 1 hour User Training Class for Air Traffic Control (ATC) personnel. ATC Training Coordinator should be present for both classes. This training shall include discussion and review of the following:
 - 1. ALCMS General System Overview
 - 2. Touchscreen Operations
 - 3. Using the Control System (GUI)
 - 4. Command and Control Sequences
 - 5. Alarm and Warning Messages
 - 6. Failsafe Conditions
 - 7. Granting Local Control to the Vaults
- C. Training classes for FAA ATC personnel should be limited to a maximum of 4-6 people per class.

Maintenance Training

- A. Maintenance should designate a Training Coordinator that shall be responsible for scheduling and organizing on-site training for their personnel. In addition, this coordinator shall be responsible for training other personnel that were absent or unable to attend the training sessions.
- B. The ALCMS Manufacturer shall provide two (2), 8 hour (one day) training class for maintenance personnel. This training shall include discussion and review of the following:
 - 1. System Block Diagram
 - 2. System Assemblies and Wiring Diagrams
 - 3. Touchscreen Operation
 - 4. Graphical User Interface (GUI) Screens
 - 5. Maintenance and Troubleshooting
 - 6. Granting Local Control to the Vaults
 - 7. Power Up and Power Down Sequences
 - 8. Failsafe Operations
 - 9. Implementing Airfield Lighting Changes
 - 10. Maintenance Report Generation
- C. Training classes for maintenance personnel should be limited to a maximum of 4-6 people per class.

Owner System Acceptance and Warranty Start Date

- A. Upon successful completion of the SAT and on-site training the owner shall issue the ALCMS Manufacturer a written notice of system acceptance within five (5) working days.
- B. The date the final acceptance letter is received or five (5) days following successful completion of the SAT (whichever occurs first) represents the start of the warranty period. Please refer to the Warranty section for more information regarding the ALCMS warranty guarantee.

System Warranty

- A. All equipment shall be warranted against defects in workmanship, hardware and software for a period of one (1) year from initial operation of the system but not more than eighteen (18) months from the manufacturer's shipment of the system.

- B. During this time period the ALCMS manufacturer shall provide all parts, labor and technical support with the following conditions:
1. The manufacturer shall correct by repair or replacement, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation, properly installed and properly operated after installation, provided further that Buyer gives manufacturer written notice of such defects after delivery of the goods to Buyer.
 2. The manufacturer may examine any goods upon which a claim is made in the same condition as when defect therein is discovered, and may require the return of the goods to establish any claim.

System Service and Support

- A. The ALCMS Manufacturer shall provide technical assistance and support during the warranty period.
- B. The ALCMS Manufacturer shall provide a 7 day a week / 24 hours a day support phone line.
- C. The ALCMS Manufacturer shall provide technical phone support within four (4) hours of the initial call.
- D. The ALCMS Manufacturer shall provide free phone consultation and technical support as required during the warranty period and if necessary shall be on-site within 24 hours.
- E. At the request of the airport/owner, the ALCMS Manufacturer shall provide information about preventative maintenance programs and extended warranty packages.

Spare Parts

- A. Following spare parts package shall be included as part of the contract.
- B. The spare parts package shall include the following components:

Qty	Part Number	Description
1		Touchscreen
1		Computer, Industrial, to match industrial hardware supplied
2		Distributed Control and Monitoring Equipment (DCME) Assembly
2		Current / Voltage Module (CVM)
2		Insulation Resistance Module (IRM)
2		Ethernet Fiber Optic Transceiver
2		Network Interface Card (NIC)

EQUIPMENT AND MATERIALS

General

- A. The ALCMS shall be based on a network ready system that operates within a Windows 7 or latest operating environment.
- B. The ALCMS shall be a PC-based system and shall not use any Programmable Logic Controller (PLC) components for control or monitoring.
- C. An Ethernet communication network shall be used for data transfer between the electrical vault, ATCT, and roaming laptop.
- D. The computerized airfield lighting control and monitoring system shall consist of the following major hardware components:
 - 1. Touchscreen control station located in the tower cab.
 - 2. Tower computer subsystem consisting of an industrial enclosure, industrial tower computer and communication equipment.
 - 3. Vault computer subsystem consisting of an industrial enclosure, industrial vault computer, communication equipment, and a redundant vault control / monitoring network.
- E. Within the airfield lighting vault shall be a distributed control and monitoring system which operates on a redundant communication network.
- F. The Distributed Control and Monitoring Equipment (DCME) shall be of a distributed nature that shall be installed locally at each controlled element within the vault. The vault industrial computer communicates to each DCME via either two (2) shielded cables each consisting of two (2) twisted pairs or CAT5 cable.
- G. The system shall monitor the operation of the various lighting systems per AC 150/5345-10 (current edition) requirements.
- H. The DCME units shall be external units mounted adjacent to existing regulators in vault as shown on the plans.
- I. Existing Beacon and beacon controls shall be connected to the new ALCMS in the tower cab. Furnish and install new lighting contactor and DCME for Beacon control.

Communication Network

- A. The tower and electrical vault shall communicate with each other via the following communication network.

Proposed Fiber Optic Ethernet, 1310nm, multi- mode

- A. Supply, installation, termination and testing of the fiber optic cable and associated equipment including fiber cable, fiber patch panels, fiber patch cables, SC connectors and couplings shall be the responsibility of the electrical contractor.
- B. Fiber optic jumper cables shall be provided from the fiber patch panel to the computer equipment enclosures.
- C. Fiber optic cable shall be terminated with SC style connectors at the fiber optic transceivers located within the vault computer cabinet.
- D. Fiber optic runs shall be direct point-point runs with no splices when possible.
- E. Existing fiber optic cable between ATCT and Vault shall be re-used.

Computers

Industrial Computer

- A. All the industrial-grade computers in the ALCMS system are identical and have the following minimum technical specifications:

ID	Options	Description
a)	Type	Industrial-grade computer. Arista or approved equal
b)	Processor Type	Intel ATOM E3845 @ Processor (or greater)
c)	Processor Clock Rate	1.9 GHz or better
d)	Memory Capacity	4 GB DDR3 800 RAM (Memory Clock 200 MHz, Data Rate 800 MT/s) (or greater)
e)	Hard Disk See details to follow	120GByte Solid State Flash Drive Standard rotating drives are not acceptable
f)	Compact Flash Card See details to follow	16 GB CFast Card (or greater) Stores compressed "Ghost" image of Flash Drive, airport specific programs and configurations
g)	Video (Integrated)	SVGA, 8MB VRAM, minimum support 1280 x 1024
h)	Operating System	Window 7 Pro

Table 1: Industrial Computer Specifications

- B. All the industrial-grade computers in the ALCMS system shall be designed using a fanless box PC architecture.
1. The computer shall contain passive cooling, no moving fans.
 2. The computer shall be powered by 24VDC.
 3. The computer shall be either desk, wall, or DIN-rail mountable.
 4. The computer shall be rated IP50 or greater.

Flash Drive

- A. The computer shall use a solid state Flash Drive (no moving parts) and it shall be a Samsung or approved equal.
- B. The Flash Drive shall have a minimum of storage capacity of 64GB SSD.
- C. The Flash Drive shall operate at temperatures from 0 degrees C to +70 degrees C
- D. The Flash Drive shall have 1000G operating shock and 15G operating vibration rating.
- E. The drive shall have a MTBF of greater than 1,000,000 hours.
- F. The Flash Drive shall have a manufacture warranty of 3 years.
- G. The Flash Drive shall store the operating system and any programs that require erase/read/write cycles.
- H. Flash Drive specification sheets shall be provided with Submittal showing proposed flash drive meets specification requirements.

Compact Flash Card

- A. The computer shall use an external Compact Flash (CF) Card which shall be installed using an internal 3 ½" bay with a compact flash card reader.
- B. The CF Card shall be a minimum of 4 GB
- C. No erase and/or write cycles shall occur to the Compact Flash Card.
- D. The CF Card shall store programs and configuration files that are only read during power-up. These files should be the airport specific programs and configurations.
- E. The CF Card shall contain a "Ghost" image (Exact image of the original drive) of the Flash Drive which allows for easy Flash Drive replacement and repair.

Flash Drive Service / Repair

- A. The touchscreen computer shall be able to be rebuilt using a new blank Flash Drive or blank standard Hard Drive.
- B. The computer shall be able to boot from the CF Card and execute a "Ghost" image rebuild program.
- C. The rebuild program shall extract and copy the "Ghost" image, all configurations and airport specific programs from the CF Card to the new blank Flash Drive.
- D. Upon completion of the rebuild program, the touchscreen computer shall be able to be rebooted and be completely operational.

Vault Computer

- A. The vault computer shall be capable of independently carrying out the following functions:
 - 1. Decode all commands received and transfer them to the corresponding Distributed Control and Monitoring Equipment (DCME) unit for execution.
 - 2. Interrogate all the DCME units to determine the status of the Constant Current Regulators (CCRs) and other controllable items.
 - 3. Transfer the status of the CCRs and other controllable items to the control tower computer and maintenance center computer.
 - 4. Continuously check for proper operation of all the communication links connected to the computer.
 - 5. Continuously check for proper operation of the vault distributed control and monitoring network.
 - 6. Duplicate the tower control and graphical displays for allowing authorized control from the vaults.
 - 7. Vault shall also duplicate the maintenance center status information.
 - 8. Provide hard copies of real-time and historical information on the status of the airfield lighting systems and other controlled and monitored items.
 - 9. The vault computer application shall not be able to initiate lighting commands unless the control tower authorizes control to Vault.

Tower Computer

- A. The Tower computer shall be capable of independently carrying out the following functions:
 - 1. Receive commands from the Touchscreen control station and transfer lighting control commands to vault for execution.
 - 2. Receive the airfield lighting status information from vault and transfer the status to the Touchscreen display.

Wireless Roaming Maintenance Computer – Wireless Service

- 1. A wireless maintenance computer shall be provided to allow for remote connection to the ALCMS system from a maintenance vehicle or other remote location.
- 2. The maintenance computer shall be a notebook computer with docking station to allow the unit to be docked and re-charged.
- 3. The computer shall provide real-time control and monitoring of the airfield lighting system when in range of the wireless coverage.
- 4. The wireless computer shall use wireless Ethernet to provide wireless roaming access to the ALCMS system.
- 5. The ALCMS manufacturer shall provide all peripherals, computer cards and wireless equipment required to configure the computer to work with the Ethernet network.

Roaming Maintenance Laptop Computer Technical Specifications

- A. All roaming maintenance computers in the ALCMS system shall have the following minimum technical specifications:

ID	Options	Description
a)	Type	Panasonic Toughbook or equal
b)	Processor Type	Intel Pentium® 4
c)	Processor Clock Rate	2.5 GHz or better
d)	Memory Capacity	1 GB RAM or better
e)	Hard Disk Drive	32 Gb or larger
f)	2 X USB Ports	2 USB Ports
g)	Cache Memory	L2 512KB
h)	CD-ROM	52X
i)	Video (Integrated)	SVGA, 8MB VRAM, minimum support 1280 x 1024
j)	LCD Screen	12" diagonal viewing area or greater
k)	Operating System	Window 7 Pro
l)	Connectivity	802.11n or greater, available 3g/4g connection

Table 2: Laptop Computer Specifications

Touchscreen Control Stations

Technical Specifications

- A. Touchscreen technology shall be integrated into the display monitor and shall have the following minimum technical specifications:

	Options	Description
a.	Technology	AccuTouch™ Five-Wire Resistive
b.	Screen Resolution	1280 x 1024 (minimum)
c.	Touch Resolution	Touchpoint controller resolution of 4096 x 4096
d.	Input method	Finger or stylus
e.	Positional Accuracy	Standard deviation error less than 0.080" (2mm)
f.	Agency Approvals	UL, CE, FCC Class A
g.	Chemical Resistance	The active area of the Touchscreen is resistant to all chemicals that do not affect glass.
h.	Temperature / Relative Humidity	-10°C to 50°C at 90% RH, non-condensing
i.	Electrostatic	Per EN 61000-4-2
j.	Light Transmission	80% +/- 5% at 550nm wavelength
k.	Face Plate	Anti-glare
l.	Expected Life	35 million touches in one location without failure

Touchscreen Monitor Specifications

- A. The touchscreen video graphics display shall have the following minimum technical specifications:

Standard Screen

	Options	Description
a.	Type	LCD, active matrix
b.	Mounting	Flush Mount
c.	Size	19" Diagonal viewable 4:3 aspect ratio
d.	Screen Resolution	1280 x 1024 (minimum)

Wide Screen

	Options	Description
a.	Type	LCD, active matrix
b.	Mounting	Flush Mount
c.	Size	21.5" Diagonal viewable 16:9 aspect ratio
d.	Screen Resolution	1920 x 1080 (minimum)

- B. The tower touchscreen video graphics display shall be designed to be installed flush into a cabinet console. A minimum four (4) inch clearance must be provided around the perimeter of the touchscreen installation to allow for proper heat dissipation.
- C. Installation of the touchscreen and all cabinetry work and modifications is the responsibility of the Contractor.
- D. The Contractor shall install to match existing cabinet construction and color.
- E. The Contractor shall coordinate all work with FAA and COTR for any required modifications and upgrades inside the ATCT.

Subsystem Equipment

Tower Equipment

A. Computer

1. The Tower computer shall be a 19" industrial rack-mount type.
2. The computers shall meet previously specified technical requirements.
3. 120 VAC, uninterruptible power shall be supplied to the computer and the Tower Touchscreen Monitor.

B. Touchscreen Monitors

1. 17" Touchscreen shall be mounted in the Tower cab console or as required by FAA.
2. 120 VAC, uninterruptible power shall be supplied to the Tower Touchscreen.

C. Video / Serial Communication Extension Equipment

1. A Video / Serial Communication extension Receiver box shall be installed in conjunction with Touchscreen display under the tower cab console.
2. A Video / Serial Communication extension Transmitter box shall be installed in conjunction with the tower computer located in the tower sub-junction.
3. The video extension transmitter shall allow for simultaneous connection of the local service monitor and the remote touchscreen monitor.
4. A category 5 communications cable shall be installed between the Receiver and Transmitter. A spare CAT 5 cable shall also be installed, for use as a future troubleshooting aid.

D. Service Monitor (LCD)

1. The service display shall use a 19" LCD monitor.
2. The monitor shall be located on a shelf within the tower equipment enclosure.
3. 120 VAC, uninterruptible power shall be supplied to the monitor.

E. Audible Alarm assembly

1. An audible speaker shall be installed in conjunction with Touchscreen display.
2. An audio and volume control cable shall be installed between the audible speaker and the tower computer located in the tower sub-junction.

F. Uninterruptible Power System

1. An uninterruptible power system (UPS) shall be provided for supporting power to the tower equipment.
2. The UPS shall be capable of supplying full load power for 10 minutes after loss of main input power.
3. The UPS shall be a 19" rack-mount unit installed in the tower computer equipment enclosure.

G. Industrial Enclosures

1. A NEMA 12 industrial enclosure shall be provided for housing associated tower computer equipment.
2. The enclosure shall be designed for indoor use to provide protection against dust, dirt, dripping water and external condensation of non-corrosive liquids.
3. The enclosure shall be an industry standard 19" rack-mount type enclosure.
4. The industrial enclosure shall include a pagoda top with exhaust fan and ventilation kit for proper convection cooling.
5. The environmental conditions within the area of the enclosure installation shall not exceed 122°F (50°C) or fall below 32°F (0°C).
6. Installation of the tower equipment shall be the responsibility of the electrical contractor. The electrical contractor with the airport and/or owner shall coordinate the installation and location of the tower equipment.

Vault Equipment

A. Computer

1. The vault computer shall be a 19" industrial rack-mount type.
2. The computer shall meet previously specified technical requirements.
3. 120 VAC, uninterruptible power shall be supplied to the computer.

B. Monitor (LCD)

1. The service display shall use a 19" LCD monitor.
2. The monitor shall be located on a shelf within the vault equipment enclosure.
3. 120 VAC, uninterruptible power shall be supplied to the monitor.

C. Uninterruptible Power System: Vault Computer Equipment

1. An uninterruptible power system (UPS) shall be provided for supporting power to vault equipment.
2. The UPS shall be capable of supplying full load power for 10 minutes after loss of main input power.
3. The UPS shall be a 19" rack-mount unit installed in the vault computer equipment enclosure.

D. Uninterruptible Power System: DCME Control and Monitoring Equipment

1. An uninterruptible power system (UPS) shall be provided for supporting power to the DCME equipment.
2. The UPS shall be capable of supplying full load power for 10 minutes after loss of main input power.
3. The UPS shall be a 19" rack-mount unit installed in the vault computer equipment enclosure.

E. Industrial Enclosures

1. A NEMA 12 industrial enclosure shall be provided for housing associated with vault computer equipment.
2. Each enclosure is designed for indoor use to provide protection against dust, dirt, dripping water, and external condensation of non-corrosive liquids.
3. The enclosure shall be an industry standard 19" rack-mount type enclosure.
4. The industrial enclosure shall include a pagoda top with exhaust fan and ventilation kit for proper convection cooling.
5. The environmental conditions within the area of the enclosure installation shall not exceed 122°F (50°C) or fall below 32°F (0°C).

Distributed Control Equipment

- A. The control and monitoring equipment shall be of a distributed nature and shall not be PLC based.
- B. The DCME units shall be installed locally at each device (i.e. CCR) which requires control and/or monitoring within the airfield lighting electrical vault.

General

- A. Each CCR and each controllable item shall be connected to a DCME.
- B. The DCME shall be a microprocessor-based module that includes all of the communication, control commands, input/output connections and failsafe functionality.
- C. The DCME shall communicate via a redundant (2 independent communication links) communications network.
- D. Connections to the communication network shall be via quick disconnect terminal connectors that can easily be plugged and unplugged from the communication equipment.
- E. The DCME shall communicate back to the Vault computer via either of the networks.
- F. Removal of any DCME units from the vault network shall not affect the operation of the ALCMS system.
- G. The DCME shall be a universal device that can be used on any type of CCR and/or controlled element from any manufacturer.
- H. To minimize spare parts needs, each DCME shall be identical and have interchangeable components.
- I. The DCME unit shall provide optical isolation from all high voltage equipment including the CCR output current, CCR output voltage and CCR input voltage.
- J. All high voltage interfaces to the DCME unit shall be via fiber optic cable.

Redundant Vault Control Network

- A. The DCME redundant communication network shall use at least two (2) independent communication network cables installed in the electrical vault.
- B. The vault network shall use two (2) cables each consisting of two (2), 24AWG, shielded twisted pairs with a common (drain wire) meeting EIA RS-485 applications (Belden™ no. 9842), two (2) CAT5 redundant, daisy-chainable ethernet or an ALCMS manufacturer approved equivalent.
- C. The DCME must provide an optional backup wireless network connection to the ALCMS
- D. The network shall be used to control and monitor all the various controllable elements located within the vault such as CCRs and Generators.
- E. Any malfunction in one network shall not affect the operation of the other communications network.
- F. Any malfunction in one of the DCME communication ports shall transfer communication to the remaining port without affecting system functions.

Overview of Operation - Externally Mounted DCME

- A. Each DCME unit shall have a unique factory set address and a field programmable communication address.
- B. Each DCME unit shall have a 7" easily readable, full color, touchscreen display.
- C. Each DCME unit shall be able to be fully configured from the front panel display, without the need for a separate PC and/or specialized software.
- D. The DCME receives commands via the vault network, executes those commands, and transfers back the status of the element to the vault computer.
- E. The DCME shall perform the following functions:
 - 1. Brightness setting control of the CCRs or ON/OFF control as required by the controlled element (i.e. generator may only require ON/OFF control).
 - 2. Perform all failsafe functions.
 - 3. Communication via both networks to the vault computer.

4. Self-diagnostic function to monitor for proper operation.
5. Locally store all data and parameters specific to the controlled element.
- F. For maintenance purposes, the DCME shall have an internal ON/OFF switch and shall have a front hinged access door.

Basic DCME components - Externally Mounted DCME

The DCME shall consist of the following basic components and functions:

- A. Default Input / Output Board
 1. Shall provide eight (8) mechanical latching output points. These control points shall also be self-monitored and provide back-indication to the Vault computer verifying proper execution of the control command.
 2. Shall provide eight (3) optical-isolated input points.
 3. Shall provide quick-disconnect terminal blocks that can be easily plugged and unplugged from the I/O board.
- B. Main Board
 1. Shall provide redundant communication network circuitry.
 2. Shall provide quick-disconnect terminal blocks for redundant communication network connections.
 3. Receives and transmits data to the vault computer.
- C. Digital Display
 1. Shall provide visual display of all DCME monitored values on one screen (Power, communications and monitoring).
 2. Brightness Step: display indicating the commanded step of the CCR.
 3. Communication status: display indicating the status of channel A of the redundant communication network.
- D. Current and Voltage Monitoring Unit
 1. Shall provide real-time measurements of the output current of the CCR
 2. Shall provide real-time measurements of the output voltage of the CCR

Distributed Monitoring Equipment

The DCME shall provide the following minimum monitoring:

L-827/9 Monitoring - Externally mounted

- A. The DCME unit shall provide full FAA L-827/9 monitoring per FAA AC 150/5345-10 (current edition).
- B. The DCME shall include the monitoring board and provide the following information for each CCR:
 1. Loss of input power to the CCR.
 2. CCR shutdown by open-circuit / over-current protective devices.
 3. Drop of more than 10% in the CCR VA load.
 4. Failure of the CCR to deliver the selected output current.
 5. The number of burnt-out lamps (L-850, L-852, L-861, L-861 series) in each series circuit. For best accuracy, all lamps/transformers are the same wattage, and no film disc cutouts are used.
 6. Remote / Local status of the CCR.
 7. Actual CCR output current
 8. Actual CCR output voltage
 9. Actual CCR output load wattage (W)
 10. Actual CCR output load Volts-Amps (VA)

- C. The DCME digital display shall provide local indication of the CCR status including
 - 1. Remote/Local: display indicating the status of the remote / local switch of the CCR.
 - 2. Primary Power: display indicating the status of the input power to the CCR.
 - 3. Over current: display indicating over current, protective shutdown.
 - 4. Open circuit: display indicating open circuit status.
- D. The DCME shall interface to an external current and voltage module (CVM) used to collect current and voltage information. The CVM shall meet the following minimum requirements.
 - 1. Collects analog current and voltage samples at a high sample rate of 50,000 samples/second.
 - 2. Transmits current and voltage samples to the DCME.
 - 3. Provide digital fiber optical isolation between the DCME and the output of the CCR.
 - 4. Quick disconnect fiber optic connections for interfacing to the DCME.

The ALCMS manufacturer shall provide the fiber optic cable between the CVM and the DCME.

Insulation Resistance Monitoring

- A. The DCME unit shall provide insulation resistance monitoring as an integral component of the DCME unit.
- B. The IRMS is capable of automatically or manually monitoring and reporting the insulation resistance value of the series circuit cabling (one IRMS per circuit).
- C. The measured resistance shall be displayed locally at the DCME digital display.
- D. The DCME unit shall be capable of reading and recording resistance values from less than 20k Ohms to 2G Ohms.
- E. The DCME shall interface to an external insulation resistance module (IRM). The IRM shall meet the following minimum requirements.
 - 1. Collects insulation resistance samples.
 - 2. Transmits insulation resistance samples to the DCME.
 - 3. Provide digital fiber optical isolation between the DCME and the output of the CCR.
 - 4. Quick disconnect fiber optic connections for interfacing to the DCME.
- F. The IRMS system shall be capable of taking resistance readings on circuits that are energized or de-energized. This shall allow the system to be used as a troubleshooting tool for assisting in locating circuit faults.
- G. The IRMS system shall provide database record keeping that allows for graphical trend analysis of the insulation resistance readings.
- H. The IRMS shall provide configurable insulation resistance warning and alarm limit notification to the system.
- I. The IRMS shall be able to be configured for a minimum of two (2) reading times per day.
- J. The IRMS shall be able to be configured to take readings hourly, daily, weekly or monthly.
- K. All user programmable variables shall be able to be changed at any specified computer within the ALCMS system.
- L. All the IRMS data shall be viewable either as real-time or as historical data at any specified computer location. The IRMS information shall be available at all times and shall not require any special transfer of data between the IRMS system and the control system (since the IRMS is an integral component of the ALCMS).

Latching Failsafe

- A. Each DCME unit shall provide a self-contained latching failsafe feature that shall perform the following functions:
 - 1. Ensure default operation of the airport lighting, even if the entire airport lighting control system is not functioning.
 - 2. Display the commands sent by the computer to the CCRs and/or to the other controllable items.
 - 3. Adaptable to each CCR regardless of internal or external control voltage.
 - 4. Permits maintenance of portions of the control system, without changing the operational status of the lighting system.
- B. The failsafe mode of each DCME unit shall be "Passive Failsafe" (Latching) mode.
- C. If the CCR was switched ON before the failure, it shall remain ON at the same brightness level.
- D. If the CCR was switched OFF before the failure, it shall remain OFF.
- E. Failsafe shall be able to be bypassed by selecting the CCR locally to any desired brightness level.

Failsafe Technical Specifications

- A. The failsafe system shall operate independently of the computer, providing failsafe interfacing to the CCR and/or other controllable elements.
- B. The failsafe system shall be based on electromechanical latching relays with the following characteristics:

Specification	Rating
Maximum switching voltage	240VAC, 125VDC
Nominal switching capacity	8A / 250VAC 5A / 30VDC
Rated current (resistive)	1A
Operational Life	Mechanical 5X10 ⁷ Electrical 10 ⁵
Protection	IP67 (protection against ingress of dust and water in harmful quantities)

- C. Mode of Operation
 - 1. The commands executed by the DCME to switch the CCR and/or controllable element shall be momentary commands.
 - 2. The control commands shall be mechanically latched upon execution.
 - 3. Failure of the DCME and/or loss of communication to the network shall not change the status of the airport lighting.

DCME Mounting

The DCME equipment shall be mounted as an external combination box beside existing CCR's in the Electrical Vault. The combination box shall contain all DCME equipment, CVM, and/or IRM board.

Graphical User Interface Operation

General

- A. The Tower Touchscreen display shall control and monitor the airfield lighting system. The display shall show real-time information on the operational status of the airfield lighting systems.
- B. The Touchscreen control stations shall consist of multiple Touchscreen 'pages' each with a specific function. These Touchscreen 'pages' are defined as follows:
 - 1. **Preset:** Consists of pre-defined preset buttons used to simplify airfield lighting control commands.

2. **Runway Lights:** Consists of runway control touch buttons used to individually control runway circuits. Multiple runway pages may be necessary for airports with several runways.
3. **Taxiway Lights:** Consists of taxiway control touch buttons used to individually control taxiway circuits if required.
4. **Utilities:** Consists of miscellaneous functions for calibrating the Touchscreen, granting lighting control to other locations, setting the date and time, etc.
- C. All preset and control configurations shall be defined by the airport/owner in conjunction with Air Traffic Control requirements.
- D. The ALCMS manufacturer shall provide preset tables to be used by the airport/owner to define the configuration settings.

Overview of Operation

- A. Airfield lighting control commands are entered into the system by touching the corresponding touch button on the Touchscreen video display. When a command is entered, the Touchscreen shall respond by graphically displaying the button as being depressed and change the button color.
- B. The associated circuit graphics shall alternately flash indicating the airfield lighting section that shall be affected when this command is "confirmed".
- C. Once confirmed, the Tower Touchscreen shall register the command, generate a data instruction and transmit the command to the vault computers for implementation. The command is also simultaneously transmitted to the maintenance computer and all other computers connected to the network.
- D. The tower Touchscreen shall receive confirmation from the vaults that the corresponding equipment has responded to the control command and displays the current system status on the Touchscreen display.
- E. In the event that communications are lost between the tower and vaults, an alarm is indicated at each computer location.
- F. In the event of a predefined alarm condition, the effected airfield lighting circuit graphic shall flash red, and an audible alarm tone shall alert operators to the alarm condition.

ALCMS Alarm Functions

Touchscreen Audible Alarm

- A. The audible alarm shall sound at each Touchscreen display when an alarm condition occurs. In addition, the 'ALARM ACK' button shall flash, and the associated airfield circuit graphics shall change to red.
- B. The audible alarm shall stop automatically after three (3) seconds unless the 'ALARM ACK' button is pressed.
- C. If the alarm is not acknowledged, the audible shall cease for sixty (60) seconds while the 'ALARM ACK' continues to flash. If the 'ALARM ACK' is still not pressed after the sixty (60) seconds, the audible shall sound again for three (3) seconds.
- D. This sequence shall repeat indefinitely until the alarm is acknowledged.

Circuit Alarms

- A. The ALCMS shall continuously monitor the status of all of the circuits per the monitoring requirements as specified previously.
- B. If there are any monitoring discrepancies (i.e. incorrect CCR output current, loss of primary power) an alarm shall be generated at the Touchscreen display for the associated circuit.

Touchscreen Command Sequences

- A. The Touchscreen control station shall allow the airfield lighting circuits to be controlled individually (i.e. RWY Edge) or as a group based on preset tables (See following section).
- B. Each control command shall require two distinct operator actions in order for the command to initiate any state changes in the airfield lighting. The command sequence shall be as follows:
 - 1. **Select circuit:** Operator selects the desired circuit to be changed.
 - 2. **Select intensity:** Operator selects the desired brightness step that the circuit is to be changed to.
 - 3. **Graphics flash:** The graphics associated with the selected circuit shall begin to flash visually indicating to the operator the airfield lighting section that is going to be affected by the command.
 - 4. **Confirm/Reject:** Operator selects the 'CONFIRM' button to accept the selection and initiate the lighting change. Operator selects the 'REJECT' button to cancel the selections and make another selection.

Touchscreen Preset Sequences

- A. The Touchscreen control station shall allow simultaneous airfield lighting circuit changes to be accomplished using preset lighting sequences.
- B. The preset lighting sequences shall be defined by the airport in airfield lighting preset tables.
- C. Each preset lighting change shall be based on the following operator inputs:
 1. **Active Runway Selection:** Operator selects the runway(s) that shall be active. This is based on runway direction (i.e. "RWY 9")
 2. **Day/Night Setting:** Operator selects the day/night setting. The day/night setting shall control the intensity of the circuits.
 3. **Visibility:** Operator selects a single visibility setting that is based upon the current airport visibility.
 4. **Confirm/Reject:** Operator selects the 'CONFIRM' button to accept the preset selections and initiate the lighting change. Operator selects the 'REJECT' button to cancel the selections and make another preset selection.
- D. Upon confirmation of the preset selections, the intensity of all the circuits associated with the preset condition shall automatically change to match the visibility requirement.
- E. The preset visibility setting of the CCRs is based on FAA document 7110.65 (current version). Presets shall also be coordinated with the airport and the FAA to properly define airfield lighting operational usage.
- F. The visibility settings shall include Intensity and Preset Invalid monitoring. This indicates when a preset or intensity setting on the airfield is different than the selected preset intensity.
- G. According to FAA document 7110.65 (current version), the visibility settings for the 5-step CCRs shall be based on the following table:

Visibility	Day (Brightness step)	Night (Brightness step)
Less than 1 mile	5	4
1 to but not including 2 miles	4	3
2 to but not including 3 miles	3	3
3 to 5 miles inclusive	0	2
More than 5 miles	0	1

Table 3: 5-step Regulators

- H. According to FAA document 7110.65 (current version), the visibility settings for the 3-step CCRs shall be based on the following table:

Visibility	Day (Brightness step)	Night (Brightness step)
Less than 1 mile	3	2
1 to but not including 2 miles	0	1
2 to but not including 3 miles	0	1
3 to 5 miles inclusive	0	1
More than 5 miles	0	1

Table 4: 3-step Regulators

- I. According to FAA document 7110.65J, the visibility settings for the 1-step CCRs shall be based on the following table:

Visibility	Day (Brightness step)	Night (Brightness step)
Less than 1 mile	1	1

1 to but not including 2 miles	0	1
2 to but not including 3 miles	0	1
3 to 5 miles inclusive	0	1
More than 5 miles	0	1

Table 5: 1-step Regulators

- J. According to FAA document 7110.65J, the visibility settings for the Rotating Beacon shall be based on the following table:

Visibility	Day (Brightness step)	Night (Brightness step)
Less than 1 mile	ON	ON
1 to but not including 2 miles	ON	ON
2 to but not including 3 miles	ON	ON
3 to 5 miles inclusive	OFF	ON
More than 5 miles	OFF	ON

Table 6: Beacon

Graphical Airport Pictorial

- A. The ALCMS display screens shall display a graphical pictorial representation of the airport runways, taxiways and other requested airport features.
- B. When there is a change in lighting system status, the appropriate graphical detail shall indicate the status by changing color.
- C. The circuit intensity display colors shall be represented as seen in the legend as follows.

COLOR LEGEND		
STEP 5	CYAN	STEP 3
STEP 4	LIGHT GRN	
STEP 3	MAGENTA	STEP 2
STEP 2	DARK GRN	
STEP 1	DARK BLUE	STEP 1
STEP 0	DARK GRAY	STEP 0

Figure 1: Brightness Step Color Legend

- D. The status monitoring display colors shall be represented as seen in the legend as follows. This includes ATS monitoring, generator monitoring and communications monitoring:

COLOR LEGEND	
NORMAL	GREEN
ALARM	RED
OFF	DARK GRAY

Figure 2: Status Monitoring Color Legend

Vault Emergency Generator Control

- A. The ALCMS shall provide monitoring of the emergency diesel generator located adjacent to the airfield lighting vault from all of the control stations.
- B. The ALCMS shall provide one (1) optically isolated, dry-contact output point at the Vault.
- C. Locating and wiring of the output points within the Generator equipment shall be completed by the Contractor in coordination with the COTR and equipment manufacturer (if required).

Vault Automatic Transfer Switch (ATS) and Generator Monitoring

- A. The ALCMS system shall provide the optically isolated digital inputs to monitor the following feedback points:
 - 1. Utility Available
 - 2. Utility On-line
 - 3. Generator Available
 - 4. Generator On-line
 - 5. Generator Alarm
- B. Locating and wiring of the monitoring points within the ATS and generator equipment shall be completed by the contractor in coordination with the COTR and equipment manufacturer.

Beacon Control

- A. The ALCMS shall provide control of the rotating beacon from the ATCT ALCMS node.
- B. The ALCMS shall provide one (1) optically isolated, dry-contact output point at the tower cab. The contact shall be rated 1A at 120Vac.
- C. The ALCMS shall close the output to command the beacon ON and open the output to turn the beacon OFF. The contractor shall provide an interface relay/contactors to connect power to the beacon.
- D. Locating and wiring of the output points within the Beacon equipment shall be completed by the Contractor in coordination with the COTR and equipment manufacturer.
- E. The contractor shall provide all needed beacon interface relays/contactors, power to the beacon and FOM equipment. The contractor shall provide a current sensor of the proper current range.

METHOD OF MEASUREMENT

The quantity of new ALCMS to be paid for under this item shall be lump sum. This item shall include all the work associated with new ALCMS, including but not limited to removal of existing ALCMS and installation of new ALCMS equipment in vault and ATCT and all items included in L-109. This item shall also include installation UPS, printer, coordination with FAA, photocell, installation of circuit breaker and power in ATCT, testing of existing fiber optic cable, coordination with regulator manufacturer, installation of cable/conduits in vault and ATCT, ATCT cab counter modifications, testing, commissioning and training for a complete and operational ALCMS as specified.

BASIS FOR PAYMENT

Payment will be made at the contract lump sum price for all ALCMS components, completed and accepted. This price shall be full compensation for removal and disposal of existing equipment, for furnishing all materials, and for all preparation, assembly, installation, and testing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under the following pay item:

AR800192 – INSTALL ALCMS L-890 – PER LUMP SUM