

208

April 25, 2025 Letting

Notice to Bidders, Specifications and Proposal



**Illinois Department
of Transportation**

**Contract No. 66P99
KANKAKEE County
Section D3 LIGHTING REPAIR 2025-4
Various Routes
District 3 Construction Funds**

Prepared by

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Checked by

(Printed by authority of the State of Illinois)



NOTICE TO BIDDERS

- 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. April 25, 2025 prevailing time 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. 66P99
KANKAKEE County
Section D3 LIGHTING REPAIR 2025-4
Various Routes
District 3 Construction Funds**

Repair and maintain traffic signals, flashing beacons, roadway lighting, speed display signs, and other electrical services within Kankakee County.

- 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 101.09 of the Standard Specifications for Road and Bridge Construction, 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 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.

By Order of the
Illinois Department of Transportation

Gia Biagi,
Acting Secretary

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2025

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS and frequently used RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-22) (Revised 1-1-25)

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2022, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of Various Routes, Section D3 Lighting Repair 2025-4, Kankakee County, Contract No. 66P99 and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF PROJECT

The work to be done under this contract will be performed in Kankakee County.

DESCRIPTION OF PROJECT

The intent of this project is to repair and maintain traffic signals, flashing beacons, roadway lighting, speed display signs, and other electrical services that are requested at the locations described by work orders issued from the Illinois Department of Transportation for the period of July 1, 2025, to June 30, 2027.

The Illinois Department of Transportation contact is the District 3 Traffic Signals Section at (815) 434-8506.

The Department reserves the right to perform any repairs with its own forces.

VEHICLE PARKING

(Revised January 1, 2007)

Parking of personal vehicles within the interstate right of way will be strictly prohibited. Parking of construction equipment within the right of way will be permitted only at locations approved by the Engineer and never within median area or overnight on any roadway area.

PLASTIC DRUMS

Plastic drums according to Standard 701901 shall be used in lieu of cones, Type I and Type II barricades, and vertical barricades throughout lane closures on the interstate.

COMPLETION DATE

(Effective February 16, 2001; Revised August 15, 2005)

All work associated with this project shall be completed on or before June 30, 2027. Should the Contractor fail to complete all work by **June 30, 2027**, the Contractor shall be liable in accordance with Article 109.09 of the Standard Specifications.

CONTINUATION OF CONTRACT

The Department of Transportation may elect to lengthen the completion date specified in this contract for one year under the same terms, conditions, and unit prices, upon written agreement of both the Department and the Contractor.

If the Department elects to exercise this provision, the Department will notify the Contractor in writing. The Contractor shall provide the Department with written notice of their concurrence within 30 calendar days following the receipt of the Department's request.

LOCATIONS BY COUNTY

The current locations in Kankakee County are:

Flashing Beacon Locations

- Location 19F – US 45/52 & Manteno Road (W. 9000N Rd.)
- Location 29F – IL 102 & Kankakee River State Park South
- Location 30F – IL 102 & Kankakee River State Park North
- Location 37F – IL 102 & Chippewa Campground (Will County)
- Location 40F – IL 1 & IL17
- Location 44F – Armour Road & Birch Drive
- Location 54F – IL 1 & Whitaker Road
- Location 63F – IL 102 & Warner Bridge Road
- Location 64F – IL 113 & Warner Bridge Road
- Location 67F – IL 17 & Lowe Road
- Location 77F – US 45/52 & W 8000 S Road

Highway Lighting Locations

- Location 36L – I-57 & IL 50
- Location 37L – I-57 & IL 17
- Location 38L – I-57 & IL 45/52
- Location 39L – IL 1 & IL 17
- Location 51L – I-57 & Manteno Road/CH 9 (Manteno Interchange)
- Location 86L – I-57 & CH 37 (Chebanse Interchange)
- Location 136L – I-57 & Bourbonnais Parkway

Signal Location

- Location 3S – IL 1 & IL 17

Solar / Electric Speed Sign Location

- Location 1SD– I-57 (SB) @ Larry Power Road (MP ± 316)

Additional locations of flashing beacons, signals, and highway lighting may be added throughout the duration of the contract.

LOCATION OF UNDERGROUND STATE MAINTAINED FACILITIES

The Contractor shall be responsible for locating existing and proposed IDOT electrical facilities (traffic signal, overhead lighting, Intelligent Transportation System, etc.) prior to performing any work at his/her own expense if required. The Contractor shall also be liable for any damage to IDOT facilities resulting from inaccurate locating.

The Contractor may obtain, on request, plans for existing electrical facilities from the Department.

The Contractor shall also be responsible for locating and providing protection for IDOT facilities during all phases of construction. If at any time the facilities are damaged, the Contractor shall immediately notify the Department and make all necessary arrangements for repair to the satisfaction of the Engineer. This work will not be paid for separately but shall be included in the contract bid price. This shall include all temporary repairs required to keep the facility operational while material is being obtained to make permanent repairs. Splicing of electrical cable will not be allowed. Electric cable shall be replaced from pole to pole or controller.

TRAFFIC CONTROL PLAN

Effective: December 15, 2022

Traffic control shall be in accordance with the applicable sections of the "Standard Specifications for Road and Bridge Construction," the applicable guidelines contained in the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways," these Special Provisions, and any special details and Highway Standards contained herein and in the plans.

Special attention is called to Section 701 and Articles 107.09 and 107.14 of the "Standard Specifications for Road and Bridge Construction" and the following Highway Standards relating to traffic control:

701001	701006	701101	701106	701201	701206
701301	701306	701311	701400	701401	701406
701411	701421	701422	701426	701427	701428
701431	701446	701451	701456	701501	701502
701601	701602	701606	701701	701801	701901

Traffic shall be maintained on the associated roadways at all times during construction. All non-emergency lane closures shall be made during off-peak traffic hours, defined as time periods from 8:30 A.M. to 3:00 P.M. and 5:30 P.M. to 7:00 A.M. The Contractor shall notify the Engineer forty-eight (48) hours before the time of a planned closure. The exact time and duration of all lane closures, however, shall be as determined by the Engineer. All traffic control devices shall be furnished, erected, maintained, and removed by the Contractor in accordance with the Standard Specifications. Where possible, all post-mounted signs shall be placed a minimum of two feet (2') (0.6m) beyond the curb or edge of shoulder. Proposed sign spacing may be modified as approved by the Engineer in order to meet existing field conditions or to prevent obstruction of the motorist's view of permanent signing.

The Contractor shall utilize traffic control and protection procedures required by the applicable Highway Standards listed above, to properly protect its employees and the motoring public, when work is being performed on or near the roadway.

The Department will pay the Contractor for the actual time and materials required to install and remove traffic control standards based on the hourly rates established in the contract and Article 109.04 of the Standard Specifications.

With approval of the Department, the Contractor may utilize subcontractors to provide interstate lane closures and other complex traffic control installations. The Department will reimburse the Contractor in accordance with Article 109.04 of the Standard Specifications.

PAYMENT FOR DRIVING TIME

The Department will pay for drive time for workers and crews that are located within the geographical boundaries of District Three with the exception of work associated with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION or MAINTENANCE OF EXISTING HIGHWAY LIGHTING or MAINTENANCE OF EXISTING HIGH MAST LIGHT TOWERS and any additional pay item work performed during those maintenance operations.

Unless pre-approved by the Department in the execution of a work order, the Department will not pay for drive time for workers and crews that travel to a work site from outside of District Three.

PAYMENT OF BILLS ON BEHALF OF THE DEPARTMENT

The Department may request that the Contractor pay bills on behalf of the Department in accordance with Article 109.05 of the Standard Specifications.

PAYMENT AND INVOICES

Unless otherwise instructed, the Contractor shall submit an invoice upon completion of the work order. Invoices shall include detailed information as to the services performed, and if applicable, the pay items with quantities, the number of non-pay item related hours worked, labor rates, and a list and prices of all parts used. Final payment will not be made until all services are completed and accepted by the Department. The amount shown on each invoice shall be in accordance with the unit prices established in this contract or agreed unit pricing.

Overtime Authorization: At the time the Department issues a work order to the Contractor, the Department shall state if overtime labor is authorized, and the estimated hours of overtime labor authorized for Contractor to bill the Department in responding to and/or completing the work order. All overtime labor in excess of that specified in the work order must be approved in writing in advance by the Department. The Contractor is required to plan work on routine and emergency work orders to avoid overtime labor while meeting the response and/or completion times requested by the Department.

Should the Department require the Contractor to provide workers in addition to the electrician rates specified in the contract, the rates for such labor shall be reasonable and meet the prior approval of the Department.

If the Department authorizes the Contractor to use a piece of machinery or equipment that does not have a contract unit price and is not considered incidental to the contract, payment shall be made in accordance with Article 109.04 (b) (4) of the Standard Specifications for Road and Bridge Construction.

SUBCONTRACTOR PAYMENTS

No Sub-contractors may be utilized without approval by the Department.

When the Department authorizes the use of a subcontractor in the execution of a Work Order, the Department will pay the Contractor the actual amount of the sub-contractor invoice in accordance with Article 109.04.

KNOCKDOWN DOCUMENTATION

The Contractor shall provide the Department with photographs of all on site knockdown debris to document the damage for third party claims. The photographs shall be digital images and should have the number of views necessary to properly detail the motorist causing damage. Three or more photographs are required for adequate documentation. Identifying information should be included in the photographs as much as possible.

This requirement shall be included with this contract and no additional compensation will be allowed.

CONTRACTOR INVOICING REQUIREMENTS

The Contractor shall include the following items with each invoice:

Repair Work Orders:

A. Original Copy

1. INFORMATION ON INVOICE:

- a. Location of Service – Description of Location (Route, City, County, etc.)
- b. IDOT Work Order Number – Place Near Top of Invoice
- c. Name of I.D.O.T. Employee Who Authorized Work
- d. Work Classification – "Traffic Signal Repair" or "Traffic Signal Maintenance"

- e. Contractor Invoice Number and Date of Invoice.
- f. Pay Items: Pay items and quantities performed, material documentation for materials associated with each pay item, and unit price of each pay item.
- g. Labor Costs: Provide Original Time Sheets That Detail Who Performed the work and the Date and Time (In Hours and the Rate Per Hour), and a Description of Work Performed. Time sheets required for pay item work but hours working on pay items will not be paid.
- h. Equipment Costs: Provide Type of Equipment Used, the Time and Date Used (In Hours with Rate Per Hour). Equipment hours working on pay items will not be paid.
- i. Material Cost: Provide Specific Brand Name and Model Number (Where Applicable) of all Materials Used on the Project along with the Quantity Used, Unit Price, Mark-Up Cost, and Total Price. Material information required for pay item work, but materials associated with pay item work will not be paid separately.
- j. In the Event that Any Part or Material has a Unit Cost of \$50.00 or more, the Original Invoice Must Be Included.

Note: It is permissible for the equipment (g) and materials (h) to be listed on the time sheets (f) as specified above, and then summarized on a separate or "cover" invoice provided that the time sheets are included as attachments.

2. ATTACHMENTS TO INVOICE:

- a. Copy of IDOT Work Order with Contractor Portion Completed
- b. Original of item (1h) – "Materials \$50.00 or More".
- c. Any other items that the Contractor feels necessary to document invoice.

Maintenance (Work Orders):

A. Original Copy

1. INFORMATION ON INVOICE:

- Include items A, C, D, E, F, G, H, G, I, J

2. ATTACHMENTS TO INVOICE:

- a. Originals of Signal Maintenance Check Sheet Completed By Contractor.
- b. Original of item (1 hr.) – "Materials \$50.00 or More".
- c. Any other items that the Contractor feels necessary to document invoice.

Invoices will not be processed for payment unless work is fully completed, and all required documentation is provided with the invoice. No payment will be made on partial bills.

SCOPE OF WORK

Work shall consist of repairing or replacing damaged electrical traffic control devices, servicing malfunctioning traffic signal controllers, roadway lighting, traffic signal re-lamping and cleaning, replacing loop detectors, modernizing existing electrical facilities, repair, replacement and/or installation of traffic data collection stations and/or detectors, repair and maintenance of Intelligent Transportation System devices, repair and maintenance of fiber optic cables, adding new facilities and providing all other electrical services that are requested at locations described in a work order issued by the Department in compliance with this contract.

Entries in service logs in traffic signal controller cabinets are to be made by the Contractor at the time any controller related servicing is performed. The date and time should reflect when the serviceman arrives to begin work on the controller.

When repairing a damaged traffic signal or highway lighting standard, the Contractor shall reinstall all existing traffic signs which were attached to the standard. If these signs are damaged to the extent they cannot be reused, the Contractor shall immediately notify the Department so that replacement signs can be installed.

The Contractor shall be solely responsible for any damage to existing structures or to the right-of-way resulting from the operation of his equipment or employees while making repairs. The Contractor shall, at his/her own expense, restore any damage to a condition equal to that existing before the damage was done as directed by the representative of the Department.

Before starting work at a repair site requiring excavation, the Contractor shall contact J.U.L.I.E. at telephone number 1-(800)-892-0123 to facilitate the location of underground utilities. The Contractor shall also locate all Department lighting circuits, traffic signals, and other electrical facilities in areas of excavation and protect them.

The Contractor shall, at all times, keep Department work sites free from accumulations of waste material or rubbish caused by his employees and at the completion of the work, he shall remove all his rubbish from the work site, tools, and surplus materials. The Contractor shall repair and otherwise make good any damage caused by this work and leave the work site in the equivalent of the original condition. The damaged material shall be removed from the site, and it is the property of the Contractor, unless otherwise specified. This work shall be included in the cost of the electrical pay items.

The Contractor shall comply with all applicable OSHA requirements while performing requested services including the use of lock out and tag out kits.

In performing work required by this contract, the Contractor shall confine the equipment, the storage of material, and the operation of the workers to State of Illinois property.

At a location where electrical traffic control devices or highway lighting have been damaged, the Contractor shall review the location in order to verify materials required to complete repairs. Any questions as to location of work and/or quantities required must be resolved prior to beginning work.

The Contractor acknowledges there is no guarantee that work may or may not be performed by the Contractor, but that the Contractor will upon request of the Department, within the time element designated, do all work that is offered on a 24-hours-per-day, 7-days-per-week basis.

WORK ORDERS

No work of any kind is to be performed by the Contractor, unless a work order authorizing the work has been issued by the Engineer. Requests for emergency service calls may be initiated, by the Department, with a telephone call, faxed message, or email and followed by a written work order authorizing the work. The work order shall show the date and time issuance, type of facility, location and a description of the service required, or the problem reported and pay item(s). The work order will indicate a Department District Contact and telephone number for the Contractor to contact with any questions regarding the work order.

The Contractor shall be available to respond to calls for service at all times, including Saturdays, Sundays, and holidays, to correct any malfunction of equipment or affect any temporary emergency repair to damaged equipment resulting from any cause, and to perform emergency locates for underground facilities.

Overtime work during nights, weekends and holidays will be performed by Contractor only as authorized by the Department.

If at the time of service being performed, additional work of a minor nature (not to exceed \$500) is needed, the Contractor shall proceed with that work. If it appears that the additional work could result in a substantial addition or change to the current work order, the Contractor shall contact the Department District Contact before proceeding with the additional work.

The date and time the Contractor's work crew begins work on the work order and the date and time the requested work is completed shall be noted on the Contractor's billing invoice submitted to the Department for payment. If the work is not completed on the first trip, the Contractor shall record on the invoice the starting and ending dates and times for all subsequent work crews until the work order is completed.

The Contractor shall advise the Department's District Contact upon arrival and departure of the site of all service calls and provide the status of work. The Contractor will be provided with an after-hour's telephone number for the Department's District Contact.

CONTRACTOR'S REPRESENTATIVE

The Contractor shall designate a service representative to serve as the key contact person for the Department in the execution of this contract. The service representative shall monitor the daily activities of the contract and be available to discuss and respond to any problems that may arise. The services of this person shall be included in the contract and no additional compensation shall be allowed.

The Contractor shall assign two or more service representatives to whom the Department may issue work order and instructions and to monitor Department needs. The Contractor shall provide the Department with the names and telephone numbers of these representatives. One of these representatives of the Contractor shall be available at all times.

The Contractor shall provide the Department with a 24-hour telephone service number so that the Contractor may respond to emergencies that occur outside normal work hours.

The Contractor must notify the Department representative in writing of any employee absence that results in the Contractor representative or on-call employee unavailable for contract work. This includes all scheduled vacations, planned absences, sick time, and employee emergency situations.

Contractor representatives shall respond to Department concerns and solve any problems regarding performance under this contract. The Contractor representative shall confer with Department personnel whenever necessary and make recommendations that will ensure the Department receives the most effective service. The Contractor shall furnish the names and telephone number of the representative(s) to the Department.

QUANTITIES

The quantities specified in this contract indicate the estimated amount of work required for the duration of this contract. This is merely an estimate to allow Contractors to establish unit prices and permit the Department to determine the low bidder. It shall be understood that the unit prices of this contract shall prevail throughout the period of this contract regardless of the quantity.

PARTS AND MATERIALS

When performing work not associated with a pay item, the Contractor shall receive the actual cost for parts and materials supplied (including transportation charges paid by the Contractor) in accordance with Article 109.04. The cost of all parts and materials shall be itemized on the invoice for each work order. The actual billing invoices from the suppliers of items greater than \$100 for any single part must be submitted as documentation of parts and materials costs. When such parts and materials are furnished by the Contractor, the material shall be of the best grade of its respective kind, for the intended purpose. The Contractor is expected to make a good faith effort to purchase the parts and materials supplied by them at the lowest possible price. The transportation of the parts and materials to the location on the work order by the Contractor shall be included with the contract and no additional compensation shall be paid [except for when a special piece of equipment is required to properly transport the item(s)].

The Department may request the Contractor in writing to order parts and materials, not to be installed by the Contractor. These parts and materials will be used by the Department in the repair and/or maintenance completed by the Department work force.

Parts and materials may be furnished by the Department when available and practical, unless otherwise specified by this contract. The transportation of Department supplied parts and materials to the location on the work order by the Contractor shall be considered included with the contract and no additional compensation shall be paid (except for when a special piece of equipment is required to properly transport the item(s)). The Department, at its discretion, may expedite the repair of an installation; the Department reserves the right to deliver parts, materials, and equipment directly to the Contractor's shop or to the job site.

CONTRACTOR COMMUNICATION

All Contractor work crews shall be equipped with a cellular telephone to facilitate communications with work crews and to verify operating conditions of key electrical facilities. Only the crew leader will be required to be equipped with a cellular telephone. The Contractor shall provide the Department with the cellular telephone number being used in the execution of each work order. The Department reserves the rights to use the cellular telephone to contact a Contractor's work crew for their location and to request a report on the status of a work order. No additional compensation for cellular telephone expenses will be allowed.

LABOR, TOOLS, AND EQUIPMENT

The Contractor shall furnish all labor, tools, equipment, and other incidentals necessary or convenient to successfully complete the work orders and carry out all duties and obligations imposed by the contract.

The Contractor shall furnish and maintain tools and equipment including, but not limited to, pickup trucks, line trucks, trailers, backhoes, trenchers, air compressors and other specialized electrical equipment, and shall possess self-propelled bucket truck(s) capable of servicing overhead flashing, beacons, pole mounted highway lighting units, and overhead traffic signals. All other incidental equipment and tools shall be provided by Contractor at prices established in the Equipment Watch Rental Rate Blue Book which can be obtained at <http://www.equipmentwatch.com>.

The Contractor should utilize the appropriate equipment to complete the repair as authorized by the Department. If the Contractor chooses to use tools and/or equipment that in the opinion of the Department is above and beyond what is required, the Contractor shall be compensated at the appropriate amount as determined by the Department of what was necessary to complete the work order. The Department shall be the sole judge as to what equipment is required.

Standard equipment operating costs for fuel, lubricants, wear-and-tear, loss of equipment, repairs, servicing, filters, tires, etc. are to be borne by the Contractor. No additional compensation for these operating expenses will be allowed.

Protective gear or clothing that is required for Contractor personnel in the execution of a work order (including, but not limited to, dust masks, breathing apparatus, electrically insulated gloves, protective gloves, etc.) will be provided by Contractor and shall be in compliance with the applicable OSHA standard. No additional compensation for these operating expenses will be allowed.

Only labor required to complete work orders, exclusive of pay item work, shall be eligible for payment. Labor rates for Electricians shall be inclusive of (but not limited to) all regular and premium time, insurance, benefits, overhead, and profit.

The time allowed for the truck pay items included in this contract shall be the actual time the truck(s) is used on the work order, exclusive of pay item work. Truck rates include (but not limited to) the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs, overhaul and maintenance of any kind, depreciation, storage, overhead, profits, insurance, and all incidentals.

Arrow boards shall meet the requirements of Articles 701.15(i) and 1106.02.

Truck mounted crash attenuators shall meet the requirements of Articles 701.15(h) and 106.02.

Individual pieces of equipment and tools not listed in the "Equipment Watch Rental Rate Blue Book" and having a replacement value of \$2,500.00 or less shall be considered to be tools or small equipment and no payment will be made for their use on this contract.

Method of Measurement: Labor will be measured to the nearest 0.25 hour for Each JOURNEYMAN ELECTRICIAN or APPRENTICE ELECTRIAN for straight time and premium time rates approved for use on the applicable work order.

Truck usage will be measured to the nearest 0.25 hour for Each PICK-UP TRUCK, BUCKET TRUCK (LENGTH LESS THAN 35 FEET), (BUCKET TRUCK (LENGTH 35 FEET TO 65 FEET), or DIGGER DERRICK approved for use on the applicable work order.

Basis of Payment: Labor will be paid for at the contract unit price per Hour for JOURNEYMAN ELECTRICIAN, JOURNEYMAN ELECTRICIAN (WEEKLY OVERTIME RATE), JOURNEYMAN ELECTRICIAN (SATURDAY OVERTIME RATE), JOURNEYMAN ELECTRICIAN (SUNDAY AND HOLIDAY OVERTIME RATE), APPRENTICE ELECTRICIAN, APPRENTICE ELECTRICIAN (WEEKLY OVERTIME RATE), APPRENTICE ELECTRICIAN (SATURDAY OVERTIME RATE), AND APPRENTICE ELECTRICIAN (SUNDAY AND HOLIDAY OVERTIME RATE).

Truck usage will be paid for at the contract unit price per Hour for PICK-UP TRUCK, BUCKET TRUCK (LENGTH LESS THAN 35 FEET), (BUCKET TRUCK (LENGTH 35 FEET TO 65 FEET), or DIGGER DERRICK.

EQUIPMENT RENTAL

In the event that the Contractor needs to rent equipment for use in the execution of a work order, the Department will pay the Contractor the equipment cost contained in the Equipment Watch Rental Rate Blue Book or the actual cost of the rental if that cost is in excess of the amount shown in the Blue Book guide.

All equipment rental costs in excess of the Blue Book guide shall be authorized and approved by the Department prior to rental.

CONTROL OF WORK

The Department shall conduct frequent inspections of work and installations performed by the Contractor to determine if the work is being performed promptly and satisfactorily, and in the manner specified in the contract. The Contractor's employees shall cooperate with such inspections and shall provide information concerning the work in progress when requested by the Department. A final inspection will be made by the Department of all work locations and final quantities can be adjusted at that time. The Department reserves the right to place maximum or minimum limits on the work force and/or equipment utilized by the Contractor to execute a Work Order.

Each workday, the Contractor shall provide the Department a schedule of contract work activities for the day. The schedule will show the location, type of work, and estimate of when each work crew will be at the location on the work order. This information shall be either faxed, emailed, and/or verbally transmitted to the Department representative by 8:30 A.M.

CONTRACTOR WORK FORCE REQUIREMENTS

The Contractor shall provide adequate supervision to his work force to ensure that workers and materials are utilized in an efficient manner. This is to include, but not limited to, insuring that knowledgeable and experienced workers are matched to related servicing tasks, and that service vehicles are equipped with the parts, materials, and equipment likely to be required to complete the Work Order.

The Contractor shall at all times provide a force of qualified personnel sufficient, in the opinion of Department, to perform the work and specialized operations required and described herein. A working knowledge will be required in basic electrical circuits, solid state circuits, DC current applications, field testing equipment, and local/national electrical codes. The Contractor shall provide a list of personnel, their training and experience to the Department.

The Department shall be the sole judge as to the qualifications and credentials of the Contractor's personnel. The defining criteria for the "journeyman electrician" category would be a minimum of an I.B.E.W. journeyman electrician or better with training in all areas listed within the contract, as well as specialized training in 'Traffic Signal Controllers' and related equipment (including fiber optic systems).

Apprentice electricians can be used in the execution of this contract under the following provisions:

- All apprentice electricians shall work within the guidelines of the Apprentice Program.
- Apprentices may only be utilized for routine signal maintenance and overhead lighting tasks included but not limited to traffic signal lens cleaning, re-lamping, mast arm traffic signal post inspection and repair, and other various maintenance duties.
- Apprentices may not be utilized for any traffic signal controller cabinet maintenance or repair. Apprentices are prohibited from performing any work of this nature unless under direct supervision of a journeyman.
- Apprentices will be allowed to respond to emergency calls to assist a qualified journeyman electrician when needed.
- Apprentices must be directly supervised at all times by a qualified Contractor representative who meets the requirements listed above.

The Department reserves the right to limit the number of apprentices used in execution of this contract.

The Department reserves the sole right to control all traffic signal maintenance work performed by apprentice electricians. The Department will determine which work can be performed by the apprentice electricians and which work cannot.

TEST EQUIPMENT

The Contractor shall provide all of its own testing instruments, as required, to service the facilities of the Department.

The Contractor shall use the established procedures as defined by the manufacturer or standard practice to determine the integrity of the equipment. The Department shall be provided with the testing procedures used upon request.

All required test equipment shall be included in the contract and no additional compensation will be allowed.

CONTRACTOR RESPONSE AND WORK ORDER COMPLETION TIMES

The Department will establish an expected response and completion time for the requested service at the time a work order is issued. It shall be the Contractor's responsibility to promptly notify the Department, if for any reason, the Contractor cannot meet either the response or completion time established at the issuance of the work order, or the times established herein. In all instances, the Contractor shall comply with the standard response and completion times as follows:

Emergency Service Call Response: During regular working hours (weekdays 7:00 A.M. to 5:00 P.M.) arrive within two and a half (2.5) hours or less, and during non-regular working hours, weekends and holidays arrive within two and a half (2.5) hours or less. Emergency response calls include but are not limited to dark or malfunctioning traffic signals, knocked down traffic signal, highway lighting standards or controllers. Upon arrival at the emergency work site, Contractor personnel must immediately begin work to abate the emergency. At the direction of the Department, abatement of emergency shall be either complete restoration of the electrical device, or a temporary repair as directed by the Department.

Non-emergency Traffic Signal/Flashing Beacon Call Response: Respond within twenty-four (24) hours of issuance of the work order. Completion of work shall be within thirty (30) days of the date the work order was issued.

Highway Lighting Outage Response: Respond within five (5) working days of issuance. Working day when issued in connection with this contract shall mean any day the offices of the Department are open for normal business. The Contractor shall respond to lighting work orders where the entire lighting system is non-functional within two (2) working days.

Traffic Signal Knockdown Completion: All traffic signal knockdowns are expected to be repaired by the next day, regardless of weekends and holidays. The Contractor shall respond within the timeframes as specified herein to repair a traffic signal knockdown to clear all electrical circuits, pick up the knockdown debris, and ensure that the intersection is either back in normal operation, or in the flashing mode. If the Contractor does not have the necessary equipment or is unable to make the necessary knockdown repair the same day, the Department shall be notified.

Highway Lighting Knockdown Completion: Two work orders are normally issued to repair a highway light pole knockdown. The Contractor shall respond within two hours or less to the initial work Order to clear the electrical circuit and remove any knockdown debris from the vicinity of the roadway. When the second work order is issued to repair the knockdown, the Contractor is expected to complete the repair within five (5) working days. The Contractor shall be responsible for notifying the Department if the requested knockdown repair cannot be completed within the allotted time.

When requested by the Contractor, justifiable extensions of work order completion time may be granted at the discretion of the Department. The Contractor understands and agrees that performance will be expected in varying amounts and at various locations on the roadways designated in this contract, and in accordance with work orders issued by Department personnel. In the event the Contractor fails to meet the completion time for a work order, the Contractor and Department agree that an amount of actual damage is difficult to ascertain. Therefore, the Contractor shall be liable to the Department for penalty charges as specified in the following amounts which are reasonable and proportionate to the amount of the Work Order.

Work Order Amount	Penalty Charges Per Calendar Day
\$0 - \$500	\$25
\$501 - \$1,000	\$50
\$1001 and over	\$100

FAILURE TO MEET RESPONSE TIME

Should the Contractor fail to respond and/or complete a work order on time, or such extended time as may have been allowed by the Department, a monetary deduction will be applied to monies due or that may become due to the Contractor. The value of the monetary deduction will be as follows:

Emergency Service Calls:

Work Order Amount	Monetary Deduction for Each Hour*
From \$0 to \$500	\$50
From \$501 to \$1,000	\$100
From \$1,001 and over	\$150

* After applicable response time expires

Priority Non-Emergency Service Calls and Routine Work Items:

\$75.00 per day per work order

For the purpose of calculating the monetary deduction, a day shall be any (or portion of) excluding the following:

- (a) When adverse weather at the field work site prevents work on the controlling item of a work order.
- (b) When job conditions at the field work site due to recent weather conditions prevent work on the controlling item of a work order.
- (c) When work on the controlling item has been suspended by an act or omission by the Department or Engineer.

REPAIR PARTS, MATERIALS, AND COMPONENTS

When available and practical, traffic signal, highway lighting, and ITS equipment parts and components will be furnished by the Department, unless otherwise specified by the Department. If requested by the Department, the Contractor shall be responsible for picking up and transporting to the work site all Department furnished parts and components.

The Contractor is required to provide any parts, components and material not provided by Department. These shall include miscellaneous electrical parts and components, electrical hardware, fasteners, wire, conduit, tape, and any other materials normally associated with the maintenance of electrical devices. When such materials are furnished by the Contractor, the material shall be of the best grade of their respective kinds, for the purpose. All materials used should be itemized on the individual billing invoice for that Work Order.

The Contractor shall purchase material from the Department's traffic signal and highway lighting component contracts whenever possible. The Department may require the Contractor to purchase necessary parts and materials from other approved sources. In cases where Contractor is required to acquire parts and supplies from alternate sources and at higher prices than the components contract, the Contractor shall purchase parts at the best available price. On occasion, the Department may require approval of cost prior to purchase. The Contractor shall be compensated at the approved cost or the actual cost, whichever is lower plus the mark-up percentage stated in the contract. Contractor receipts or bills for parts and materials shall be submitted as documentation of costs.

LED MODULE AND HPS LAMP RECYCLING

The Contractor shall recycle all LED modules and high-pressure sodium lamps through a certified recycling company. The Contractor shall submit detailed information pertaining to LED module recycling to the Department for review along with the electrical material submittals. The Contractor shall submit proof of recycling to the Department.

Basis of Payment: This work will not be paid for separately but shall be included in the contract unit price for the traffic signal removal items.

TRAFFIC SIGNAL LED MODULE SPECIFICATIONS

The material requirement shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

All traffic signal solid indication and arrow LED assemblies shall be designed for a fifteen-year service life with enhanced power supplies and LEDs and shall have a fifteen-year replacement warranty. Currently, the following manufacturers and models are approved for use:

- Dialight – 12" Long Life XL15 ITE Compliant Traffic Balls and 12" Long Life XOD15 ITE Compliant Omni-Arrows
- Leotek – 12" Extended Life DT Series Incandescent Look Ball and 12" Extended Life DT Series Incandescent Look Arrows

The LED assemblies for the red, yellow, and green solid and arrow indications shall meet or exceed the following minimum specifications:

SOLID INDICATION LED MODULE SPECIFICATIONS

<u>Compliance:</u>	Fully compliant with ITE VTCSH LED Circular Signal Supplement specifications dated and adopted June 27, 2005
<u>Compliance Verification:</u>	Intertek ETL verified compliance – Product must be listed on the "Directory of LED Modules Certified Products" list located on the ETL website at http://www.intertek.com/lighting/performance-testing/traffic-signals/
<u>Diameter:</u>	12" (300mm)

<u>Lens:</u>	UV stabilized scratch resistant polycarbonate, tinted red or yellow, clear for green, uniform non-pixelated illumination, Incandescent Appearance
<u>LEDS:</u>	Hi-Flux
<u>Operating Temperature Range:</u>	-40°C to +74°C (-40°F to +165°F)
<u>Operating Voltage Range:</u>	80 to 135 V (60Hz AC)
<u>Power Factor (PF):</u>	> 90%
<u>Total Harmonic Distortion (THD):</u>	< 20%
<u>Minimum Voltage Turn-Off:</u>	35V
<u>Turn-On/Turn-Off Time:</u>	<75 ms
<u>Nominal Power:</u>	10.0 W (Red), 18.0W (Yellow), 12.5 W (Green)
<u>Nominal Wavelength:</u>	625-626 nm (Red), 589-590 nm (Yellow), 500-502 nm (Green)
<u>Minimum Maintained Intensity:</u>	365 Cd (Red), 910 Cd (Yellow), 475 Cd (Green)
<u>Standard Conformance:</u>	FCC compliant for electrical noise, MIL-STD-810F for moisture resistance, MIL-STD-883 for mechanical vibration, NEMA TS2 Transient Voltage Protection
<u>Warranty:</u>	15-year replacement (materials, workmanship, and intensity)

ARROW INDICATION LED MODULE SPECIFICATIONS (RED, YELLOW, GREEN)

<u>Compliance:</u>	Fully compliant with ITE VTCSH LED Vehicle Arrow Supplement specifications adopted July 1, 2007
<u>Compliance Verification:</u>	Intertek ETL verified compliance – Product must be listed on the "Directory of LED Modules Certified Products" list located on the ETL website at http://www.intertek.com/lighting/performance-testing/traffic-signals/
<u>Diameter:</u>	12" (300mm)
<u>Lens:</u>	Clear Frosted, UV stabilized scratch resistant polycarbonate, tinted red or yellow, clear for green, uniform non-pixelated illumination, incandescent appearance, omni-directional
<u>LEDS:</u>	Hi-flux LEDs
<u>Operating Temperature Range:</u>	-40°C to +74°C (-40°F to +165°F)

<u>Operating Voltage Range:</u>	80 to 135 V (60Hz AC)
<u>Power Factor (PF):</u>	> 90%
<u>Total Harmonic Distortion (THD):</u>	< 20%
<u>Minimum Voltage Turn-Off:</u>	35V
<u>Turn-On/Turn-Off Time:</u>	<75 ms
<u>Nominal Power:</u>	5.0-7.0 W (Red), 6.0-12.5W (Yellow), 5.0-7.0 W (Green)
<u>Nominal Wavelength:</u>	625-628 nm (Red), 590 nm (Yellow), 500nm (Green)
<u>Minimum Maintained Intensity:</u>	56.8-58.4 Cd (Red), 141.6-146.0 Cd (Yellow), 73.9-76.0 Cd (Green)
<u>Standard Conformance:</u>	FCC compliant for electrical noise, MIL-STD-810F for moisture resistance, MIL-STD-883 for mechanical vibration, NEMA TS2 Transient Voltage Protection
<u>Warranty:</u>	15-year replacement (materials, workmanship, and intensity)

16" PEDESTRIAN LED MODULE SPECIFICATIONS (MAN/HAND WITH COUNTDOWN TIMER)

<u>Compliance:</u>	Fully compliant with ITE PTCSI Part-2 LED Pedestrian Traffic Signal Modules specification adopted August 4, 2010
<u>Compliance Verification:</u>	Intertek ETL verified compliance – Product must be listed on the "Directory of LED Modules Certified Products" list located on the ETL website at http://www.intertek.com/lighting/performance-testing/traffic-signals/
<u>Size:</u>	16" x 18"
<u>Configuration:</u>	Man/Hand Overlay with Countdown Timer
<u>Lens:</u>	UV stabilized scratch resistant polycarbonate, uniform non-pixelated illumination, incandescent appearance
<u>Operating Temperature Range:</u>	-40°C to +74°C (-40°F to +165°F)
<u>Operating Voltage Range:</u>	80 to 135 V (60Hz AC)
<u>Power Factor (PF):</u>	> 90%
<u>Total Harmonic Distortion (THD):</u>	< 20%
<u>Minimum Voltage Turn-Off:</u>	35V

<u>Turn-On/Turn-Off Time:</u>	<75 ms
<u>Nominal Power:</u>	6.0-9.0 W (Man), 7.0-9.0W (Hand), 5.0-8.0 W (Timer)
<u>Minimum Maintained Intensity:</u>	1,400 Cd (Hand), 1,400 Cd (Timer), 2,200 Cd (Man)
<u>Standard Conformance:</u>	FCC compliant for electrical noise, MIL-STD-810F for moisture resistance, MIL-STD-883 for mechanical vibration, NEMA TS2 Transient Voltage Protection
<u>Warranty:</u>	5-year replacement (materials, workmanship, and intensity)

SIGNAL HEAD, LED

This work shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install a traffic signal head including brackets, hardware, and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION.

The traffic signal heads shall consist of 12" polycarbonate sections and shall be equipped with LED assemblies for all red bulb, yellow bulb, green bulb, red arrow, yellow arrow, and green arrow indications.

The traffic signal heads shall have a black finish with black doors and tunnel visors.

The LED signal faces shall be equipped with spade connectors and connected to the traffic signal head terminal block.

The LED modules shall conform to the specifications listed under the section TRAFFIC SIGNAL LED MODULE SPECIFICATIONS.

All costs associated with furnishing and installing new galvanized steel signal head bracketing shall be included in the cost of this pay item. The Contractor shall minimize the total number of holes drilled in a mast arm to no more than three.

Basis of Payment: This work will be paid for at the contract unit prices Each for Signal Head, LED of the type specified and will be payment in full for all labor, equipment, and materials required to remove the existing signal heads and bracketing and furnish and install traffic signal heads equipped with LED indications and new bracketing as described above, complete.

TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE

This work shall be in accordance with Sections 882 and 1078 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install a retroreflective traffic signal backplate including hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

The traffic signal backplates shall be of the same material as the traffic signal heads as specified on the plans.

A three (3) inch wide strip of reflective sheeting shall be applied to the outside perimeter of the face of the backplates. The reflective tape shall be fluorescent yellow in color and shall consist of type AZ sheeting.

Basis of Payment: This work will be paid for at the contract unit price Each for TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE and shall be payment in full for all labor, materials, and equipment required to furnish and install a traffic signal backplate with reflective tape as described above, complete.

TRAFFIC SIGNAL POST, GALVANIZED STEEL

This work shall be in accordance with Sections 878 and 1077 of the Standard Specifications except as modified herein.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

The traffic signal post shall be attached to the foundation with four 3/4" x 18" galvanized anchor bolts. The post base shall be secured to the foundation using galvanized nuts and galvanized steel flat washers that have a minimum thickness of 1/4" and are trapezoidal in shape. The washers shall be sized so as to completely capture the mounting flanges of the traffic signal base. Round washers will not be acceptable.

The traffic signal post, breakaway base, caps, and appurtenances shall be galvanized.

Basis of Payment: This work will be paid for at the contract unit price Each for TRAFFIC SIGNAL POST, GALVANIZED STEEL of the height specified which price shall be payment in full for all labor, material, and equipment required to provide and install the traffic signal post and base described above.

TRAFFIC SIGNAL BATTERY BACKUP SYSTEM

The Contractor shall furnish and install a battery backup system complete with all accessories specified below. The contractor shall furnish hardware, cables, and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

The following models of Battery Backup Systems are approved for use within District Three:

- Alpha Technologies Novus XFM 1100 (with standard IDOT cabinet or Alpha Technologies Side Mount 6 Integrated BBS Cabinet), Equipped with Ethernet SNMP Interface and Enhanced Capability Battery Monitoring System (AlphaGuard Plus)
- Multilink, EP 2200-T, 1500 Watts/2 kVA, 48 Volt, Equipped with Internal Communication Card and Monitoring Software

The Contractor may elect to submit an alternate product for consideration provided that it meets the minimum requirements contained in this specification.

The Contractor shall be responsible for providing Battery Backup Systems that are sized appropriately for the intersection load. The total system load shall not exceed the manufacturer's specifications.

The Battery Backup System shall be equipped with a deluxe pleated air filter and plexiglass covers to prevent accidental contact to terminal strips and connections carrying line voltage.

The battery backup systems for the existing traffic signal cabinets shall be installed as shown on the plan detail sheets and as follows:

- A separate circuit breaker shall be installed in the battery backup system cabinet (or in the traffic signal cabinet). The circuit breaker shall be rated equivalent to the main power circuit breaker rating in the existing traffic signal cabinet. The Contractor shall install #6 wiring from the test circuit breaker to the line voltage in the traffic signal cabinet. The circuit breaker shall be used to shut off the incoming utility power to test the battery backup system.
- The cabinet light, ventilation fans, heater strips, and service receptacle shall be wired to a separate circuit that will not be powered by the battery backup system
- A hole of sufficient size for the cables will be drilled into the side of the cabinet to accommodate the battery backup system cables and harnesses from the BBS cabinet. The hole shall be free of sharp edges and equipped with a plastic or rubber grommet.
- The fail-safe automatic by-pass switch and blue indicator light shall be installed in battery backup cabinet (or in the existing traffic signal cabinet).

GENERAL REQUIREMENTS: The Battery Back-up System (BBS) shall include, but not be limited to the following: inverter/charger, power transfer relay, batteries, battery cabinet, a separate failsafe automatic bypass switch and all necessary hardware and interconnect wiring. The BBS shall provide reliable emergency power to a traffic signal in the event of a power failure or interruption. The transfer from utility power to battery power and vice versa shall not interfere with the normal operation of traffic controller, conflict monitor/malfunction management unit or any other peripheral devices within the traffic controller assembly.

The BBS shall provide power for full run-time operation for an "LED-only" intersection (all colors red, yellow, and green) or flashing mode operation for an intersection using Red LED's. As the battery reserve capacity reaches 50%, the intersection shall automatically be placed in all-red flash. The BBS shall allow the controller to automatically resume normal operation after the power has been restored. The BBS shall log an alarm in the controller for each time it is activated.

All 48-volt Battery Backup Systems shall include four batteries and all 36-volt Battery Backup Systems shall include six batteries.

The BBS shall be designed for outdoor applications, and shall meet the environmental requirements of, "NEMA Standards Publication No. TS 2 – Traffic Controller Assemblies," or applicable successor NEMA specifications, except as modified herein.

The BBS shall conform to the following specifications:

1.0 **OPERATION**

- 1.1 The BBS shall be on line and provide voltage regulation and power conditioning when utilizing utility power.
- 1.2 The BBS shall provide a minimum two (2) hours of full run-time operation and four (4) hours all-red flash operation for an "LED-only" intersection (minimum 1,000W/1,000VA active output capacity, with 80% minimum inverter efficiency).
- 1.3 The maximum transfer time from loss of utility power to switchover to battery backed inverter power shall be 150 milliseconds.
- 1.4 The BBS shall provide the user with 4-sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block, rated at a minimum 120V/1A, and labeled to identify each contact. For typical configuration, see the plan detail sheet.
- 1.5 A first set of NO and NC contact closures shall be energized whenever the unit switches to battery power. Contact shall be labeled or marked "On Batt."
- 1.6 The second set of NO and NC contact closures shall be energized whenever the battery approaches approximately 40% of remaining useful capacity. Contact shall be labeled or marked "Low Batt."
- 1.7 The third set of NO and NC contact closures shall be energized two hours after the unit switches to battery power. Contact shall be labeled or marked "Timer."
- 1.8 The fourth set of NO and NC contact closures shall be energized in the event of inverter/charger failure, battery failure or complete battery discharge. Contact shall be labeled or marked "BBS Fail or Status."

- 1.9 A surge suppression unit shall be provided for the output power if available as an option by the BBS manufacturer.
- 1.10 Operating temperature for both the inverter/power transfer relay and failsafe automatic bypass switch shall be -37°C to $+74^{\circ}\text{C}$.
- 1.11 The Power Transfer Relay shall be rated at 240VAC/30AMPS minimum and failsafe automatic bypass switch shall be rated at 240VAC/20 amps, minimum.
- 1.12 The fail-safe automatic bypass switch shall be wired to provide power to the BBS when the switch is set to bypass.
- 1.13 The BBS shall use a temperature-compensated battery charging system. The charging system shall compensate over a range of $2.5 - 4.0 \text{ mV}/^{\circ}\text{C}$ per cell.
- 1.14 The temperature sensor shall be external to the inverter/charger unit. The temperature sensor shall come with 2 meters (6' – 6") of wire.
- 1.15 Batteries shall not be recharged when battery temperature exceeds $50^{\circ}\text{C} \pm 3^{\circ}\text{C}$.
- 1.16 BBS shall bypass the utility line power whenever the utility line voltage is outside of the following voltage range: 100VAC to 130VAC ($\pm 2\text{VAC}$).
- 1.17 When utilizing battery power, the BBS output voltage shall be between 110 VAC and 125 VAC, pure sine wave output, $\pm 3\%$ THD, 60Hz $\pm 3\text{Hz}$.
- 1.18 BBS shall be compatible with Illinois DOT's traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation.
- 1.19 When the utility line power has been restored at above 105 VAC ± 2 VAC for more than 30 seconds, the BBS shall dropout of battery backup mode and return to utility line mode.
- 1.20 When the utility line power has been restored at below 125VAC ± 2 VAC for more than 30 seconds, the BBS shall dropout of battery backup mode and return to utility line mode.
- 1.21 BBS shall be equipped to prevent malfunction feedback to the cabinet or from feeding back to the utility service.
- 1.22 In the event of inverter/charger failure, battery failure or complete battery discharge, the power transfer relay shall revert to the NC state, where utility line power is reconnected to the cabinet. The BBS shall always revert to utility line power and shall be designed to revert to utility line power in the event of a BBS fault condition.
- 1.23 Recharge time for the battery, from "protective low cutoff" to 80% or more of full battery charge capacity, shall not exceed twenty (20) hours.
- 1.24 When the intersection is in battery operation, the BBS shall bypass all internal cabinet lights, ventilation fans, heater strips, and service receptacles. The fail-safe automatic bypass switch shall be wired to provide power to the BBS when the switch is set to bypass.

- 1.25 A blue LED indicator light shall be mounted on the front of the traffic signal cabinet or on the side of the BBS cabinet facing traffic and shall turn on to indicate when the cabinet power has been disrupted and the BBS is in operation. The light shall be a minimum 1" diameter, be viewable from the driving lanes, and shall be large enough and visible enough to be seen from 200 ft. away.
- 1.26 All 36 volt and 48-volt systems shall include an external component that monitors battery charging to ensure that every battery in the string is fully charged. The device shall compensate for the effects of adding a new battery to an existing battery system by ensuring that the charge voltage is spread equally across all batteries. All cables, harnesses, cards, and other components that are required to provide the functionality described above shall be included in the unit bid price for the battery backup system. The following products are currently approved for use within District 3: Alpha Technologies: AlphaGuard with Charge Management Technology Module and Approved Equivalent
- 1.27 The BBS shall be equipped with an integrated safety switch that will interrupt inverter output power in the event of a cabinet knockdown. The safety switch may be either internal to the inverter/charger or externally mounted inside of the BBS cabinet. The safety switch shall be designed to interrupt output power if the charger/inverter is tilted more than twenty degrees on any axis. The switch shall be mechanically latching to ensure that power is not automatically restored to the BBS until the charger/inverter has been "reset". The switch shall also be resettable and reusable unless it has been physically damaged.
- 1.28 The BBS shall be equipped with an Ethernet port and network management card.

2.0 MOUNTING AND CONFIGURATION

2.1 GENERAL

- 2.2 Inverter/Charger Unit shall be rack or shelf mounted.
- 2.3 (Reserved).
- 2.4 All interconnect wiring provided between Power Transfer Relay, Bypass Switch and Cabinet Terminal Service Block shall be no greater than two (2) meters (6' – 6") of #10 AWG wire.
- 2.5 Relay contact wiring provided for each set of NO/NC relay contact closure terminals shall be #18 AWG wire.
- 2.6 All necessary hardware for mounting (shelf angles, rack, etc.) shall be included in the bid price of the BBS. The swing-trays shall be screwed to the Type IV or Type V NEMA cabinets using continuous stainless steel or aluminum piano hinge. All bolts/fasteners and washers shall be ½" diameter galvanized or stainless steel.

3.0 EXTERNAL BATTERY CABINET

- 3.1 The external cabinet shall be a rated NEMA Type 3R Cabinet.
- 3.2 Inverter/Charger and Power Transfer Relay shall be installed inside the external battery cabinet and the failsafe automatic bypass switch shall be installed inside the existing traffic signal cabinet or proposed battery backup cabinet.
- 3.3 Batteries shall be housed in the external cabinet which shall be NEMA Standard rated cabinet mounted to the side of the Type IV or Type V Cabinet (see plan sheets for details). This external battery cabinet shall conform to the IDOT Standard Specifications for traffic signal cabinets for the construction and finish of the cabinet.
- 3.4 The external battery cabinet shall mount to the Type IV or Type V NEMA Cabinet with a minimum of four (4) bolts to the satisfaction of the Engineer.
- 3.5 The dimensions of the external battery cabinet shall be 25" (L) x 16" (W) x 41" (H) and installed in accordance with the plan sheet cabinet detail and this specification.
- 3.6 The cabinet shall include heater mats for each battery shelf and/or battery. If the BBS charger/inverter does not have facilities to accommodate heater mat connections, thermostatically controlled heater mats shall be provided with the system. The heater mat thermostat shall be a separate thermostat (from the ventilation fan thermostat) and be adjustable from 0°F to 32°F for heater mat turn-on.
- 3.7 A warning sticker shall be placed on the outside of the cabinet indicating that there is an Uninterruptible Power Supply inside the cabinet.
- 3.8 The external battery cabinet shall be ventilated using louvered vents (2), filters, and one thermostatically controlled fan as per NEMA TS 2 Specifications. The cabinet shall include a cleanable or replaceable cabinet filter.
- 3.9 External battery cabinet fan shall be AC operated from the same line output of the bypass switch that supplies power to the Type IV or Type V Cabinet.
- 3.10 The BBS with external battery cabinet shall come with all bolts, conduits and bushings, gaskets, shelves, and hardware needed for mounting. The external battery cabinet shall have a hinged door opening to the entire cabinet. The cabinet shall include a bottom constructed from the same material as the cabinet.
- 3.11 The external cabinet shall be equipped with a power receptacle to accommodate the inverter/charger. The receptacle shall be wired to the line output of the manual bypass switch.

4.0 MAINTENANCE, DISPLAYS, CONTROLS AND DIAGNOSTICS

- 4.1 The BBS shall include a display and /or meter to indicate current battery charge status and conditions.
- 4.2 The BBS shall have lightning surge protection compliant with IEEE/ANSI C.62.41.
- 4.3 The BBS shall be equipped with an integral system to prevent battery from destructive discharge and overcharge.

- 4.4 The BBS and batteries shall be easily replaced with all needed hardware and shall not require any special tools for installation.
- 4.5 The BBS shall be equipped with a RS-232 port.
- 4.6 The BBS shall include a resettable front-panel event counter display to indicate the number of times the BBS was activated and a front-panel hour meter to display the total number of hours the unit has operated on battery power.
- 4.7 Manufacturer shall include two (2) sets of equipment lists, operation and maintenance manuals, and board-level schematic and wiring diagrams of the BBS, and the battery data sheets. Manufacturer shall include any software needed to monitor, diagnose, and operate the BBS. The manufacturer shall include any required cables to connect to a laptop computer.
- 4.8 The BBS shall include a data cable for the serial connection to the RS232 port and diagnostic software if it is available as an option with the unit (only two cables required for project).
- 4.9 One copy of the owner/maintenance manuals shall be provided with the BBS.

5.1 BATTERY SYSTEM

- 5.2 Individual batteries shall be 12V type and shall be easily replaced and commercially available off the shelf.
- 5.3 The batteries shall be premium gel type with a 5-year full replacement warranty.
- 5.4 Batteries used for BBS shall consist of a minimum of four (4) to eight (8) batteries with a cumulative minimum rated capacity of 280 amp-hours.
- 5.5 Batteries shall be deep cycle, completely sealed, silver alloy VRLA (Valve Regulated Lead Acid) requiring no maintenance with maximum run time.
- 5.6 Batteries shall be certified by the manufacturer to operate over a temperature range of – 40°C to +71°C.
- 5.7 The batteries shall be provided with appropriate interconnect wiring and corrosion-resistant mounting trays and/or brackets appropriate for the cabinet into which they will be installed.
- 5.8 Batteries shall indicate maximum recharge data and recharging cycles.
- 5.9 Battery interconnect wiring shall be via modular harness. Batteries shall be shipped with positive and negative terminals pre-wired with red and black cabling that terminates into a typical power-pole style connector. Harness shall be equipped with mating power-pole style connectors for batteries and a single, insulated plug-in style connection to inverter/charger unit. Harness shall allow batteries to be quickly and easily connected in any order and shall be keyed and wired to ensure proper polarity and circuit configuration.
- 5.10 Battery terminals shall be covered and insulated to prevent accidental shorting.

6.0 QUALITY ASSURANCE

- 6.1 BBS shall be manufactured in accordance with a manufacturer quality assurance (QA) program. The QA program shall include two types of quality assurance: (1) Design quality assurance and (2) Production quality assurance. The production quality assurance shall include statistically controlled routine tests to ensure minimum performance levels of BBS units built to meet this specification and a documented process of how problems are to be resolved.
- 6.2 QA process and test results documentation shall be kept on file for a minimum period of seven years.
- 6.3 Battery Backup System designs not satisfying design qualification testing and the production quality assurance testing performance requirements described below shall not be labeled, advertised, or sold as conforming to this specification.

7.0 DESIGN QUALIFICATION TESTING

- 7.1 The manufacturer, or an independent testing lab hired by the manufacturer, shall perform design Qualification Testing on new BBS designs, and when a major design change has been implemented on an existing design. A major design change is defined as a design change (electrical or physical) which changes any of the performance characteristics of the system, or results in a different circuit configuration.
- 7.2 Burn In. The sample systems shall be energized for a minimum of 5 hours, with full load of 700 watts, at temperatures of +74°C and -37°C., excluding batteries, before performing any design qualification testing.
- 7.3 Any failure of the BBS, which renders the unit non-compliant with the specification after burn-in, shall be cause for rejection.
- 7.4 For Operational Testing, all specifications may be measured including, but not limited to:
- 7.5 Run time while in battery backup mode, at full load.
- 7.6 Proper operation of all relay contact closures ("On-Batt", "Low-Batt", "Timer" and "BBSFail").
- 7.7 Inverter output voltage, frequency, harmonic distortion, and efficiency, when in battery backup mode.
- 7.8 All utility mode – battery backup mode transfer voltage levels. See Section 1 Operation.
- 7.9 Power transfer time from loss of utility power to switchover to battery backed inverter power.
- 7.10 Backfeed voltage to utility when in battery backup mode.
- 7.11 IEEE/ANSI C.62.41 compliance.
- 7.12 Battery charging time.
- 7.13 Event counter and runtime meter accuracy.

8.0 PRODUCTION QUALITY CONTROL TESTING

- 8.1 Production Quality Control tests shall consist of the above listed tests and shall be performed on each new system prior to shipment. Failure to meet requirements of any of these tests shall be cause for rejection. The manufacturer shall retain test results for seven years.
- 8.2 Each BBS shall be given a minimum 100-hour burn-in period to catch any premature failures.
- 8.3 Each system shall be visually inspected for any exterior physical damage or assembly anomalies. Any defects shall be cause for rejection.

9.0 WARRANTY

- 9.1 Manufacturers shall provide a minimum two (2) year factory-repair warranty for parts and labor on the BBS from date of acceptance by the State. Batteries shall be warranted for full replacement for five (5) years from date of purchase. The warranty shall be included in the total bid price of the BBS.
- 9.2 The Contractor shall furnish a warranty certificate for each Battery Backup System that includes the equipment description and details, serial numbers, effective dates, and the details of the warranty regarding materials and labor. The warranty period shall begin on the date of installation and the warranty certificate shall reflect this date.

Basis of Payment: The above work will be paid for at the contract unit price Each for TRAFFIC SIGNAL BATTERY BACKUP SYSTEM shall be payment in full for all labor, materials, and equipment required to provide, install, and test the battery backup system described above, complete.

CLOSED CIRCUIT TELEVISION CAMERA

The Contractor shall furnish and install a HD CCTV camera complete with all accessories specified below. The contractor shall furnish hardware, brackets, cables, and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

Description. This work shall consist of furnishing and installing an integrated Closed-Circuit Television (CCTV) Dome Camera Assembly, camera bracket, and all other items required for installation and operation. This assembly shall contain all components identified in the Materials Section and shall be configured as indicated on the plan sheets.

Materials.

The CCTV camera shall be an Axis Model Q6075-E Dome Camera Assembly.

The Contractor shall provide all materials required to install the proposed camera.

The Contractor shall submit catalog cut sheets to the Department for all items (mounting brackets, hardware, etc.) that will be utilized for review prior to commencing work.

The camera shall meet or exceed the following specifications:

CAMERA

VIDEO:	60 Hz (NTSC), 50 Hz (PAL)
IMAGE SENSOR:	1/2.8" progressive scan CMOS
LENS:	4.44–142.6 mm, F1.6–4.41 Horizontal angle of view: 62.8°–2.23° Vertical angle of view: 36.8°–1.3° Autofocus, auto-iris
DAY AND NIGHT:	Automatically removable infrared-cut filter
MINIMUM ILLUMINATION:	Color: 0.3 lux at 30 IRE F1.6 B/W: 0.03 lux at 30 IRE F1.6 Color: 0.5 lux at 50 IRE F1.6 B/W: 0.04 lux at 50 IRE F1.6
SHUTTER TIME: NTSC:	1/33000 s to 1/3 s with 50 Hz 1/33000 s to 1/4 s with 60 Hz
PAN/TILT/ZOOM:	Pan: 360° endless, 0.05° - 450°/s Tilt: 220°, 0.05°-450°/s 32x optical zoom and 12x digital zoom, total 384x zoom E-flip, 256 preset positions, Tour recording, Guard tour, Control queue, On-screen directional indicator, Set new pan 0°, Adjustable zoom speed

VIDEO

VIDEO COMPRESSION:	H.264 (MPEG-4 Part 10/AVC), Motion JPEG
RESOLUTIONS:	HDTV 1080p 1920x1080 to 320x180 HDTV 720p 1280x720 to 320x180
VIDEO COMPRESSION:	H.264 (MPEG-4 Part 10/AVC), Motion JPEG
RESOLUTIONS:	HDTV 1080p 1920x1080 to 320x180 HDTV 720p 1280x720 to 320x180
FRAME RATE (H.264):	Up to 60/50 fps (60/50 Hz) in HDTV 720p Up to 30/25 fps (60/50 Hz) in HDTV 1080p
VIDEO STREAMING:	Multiple, individually configurable streams in H.264 and Motion JPEG, Axis' Zipstream technology, Controllable frame rate and bandwidth, VBR/MBR H.264

IMAGE SETTING: Manual shutter time, compression, color, brightness, sharpness, white balance, exposure control, exposure zones, fine tuning of behavior at low light, rotation: 0°, 180°, text and image overlay, 32 individual 3D privacy masks, image freeze on PTZ, automatic defog, backlight compensation

Wide Dynamic Range (WDR): Up to 120 dB depending on scene, highlight compensation

NETWORK

SECURITY: Password protection, IP address filtering, HTTPSa encryption, IEEE 802.1Xa network access control, Digest authentication, User access log, Centralized Certificate Management

PROTOCOLS: IPv4/v6, HTTP, HTTPSa, SSL/TLSa, QoS Layer 3 DiffServ, FTP, CIFS/SMB, SMTP, Bonjour, UPnP, SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, SFTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS, SSH, NTP

SYSTEM INTEGRATION

APPLICATION PROG INTERFACE: Open API for software integration, including VAPIX® and AXIS Camera Application Platform; specifications at www.axis.com, AXIS Video Hosting System (AVHS) with One-Click Connection, ONVIF Profile S, specification at www.onvif.org

ANALYTICS: Video motion detection, Autotracking, Active Gatekeeper Basic Analytics (not to be compared with third-party analytics): Object removed, Enter/Exit detector, Fence detector, Object Counter, Highlight compensation, Support for AXIS Camera Application Platform enabling installation of third-party applications, see www.axis.com/acap

EVENT TRIGGERS: Detectors: Live stream accessed, Video motion detection, Shock Detection, Object removed, Enter/Exit detector, Fence detector, Object counter; Hardware: Fan, Network, Temperature, Casing Open; PTZ: Autotracking, Error, Moving, Ready, Preset Reached; Storage: Disruption, Recording; System: System Ready; Time: Recurrence, Use Schedule; Input signal: Manual trigger, Virtual input

VENT ACTIONS: Day/night mode, overlay text, video recording to edge storage, pre- and post-alarm video buffering, send SNMP trap
PTZ: PTZ preset, start/stop guard tour

File upload via FTP, SFTP, HTTP, HTTPS network share and Email; Notification via email, HTTP, HTTPS and TCP

DATA STREAMING Event data

BUILT IN INSTALLATION AIDS Pixel Counter

GENERAL

CASING:	IP66-, NEMA 4X- and IK10-rated Metal casing (aluminum), polycarbonate (PC) clear dome, sunshield (PC/ASA)
SUSTAINABILITY:	PVC Free
MEMORY:	512 MB RAM, 128 MB Flash
POWER CAMERA:	Axis High PoE midspan 1-port: 100–240 V AC, max 74 W Camera consumption: typical 16 W, max 60 W
CONNECTORS:	RJ45 10BASE-T/100BASE-TX PoE, RJ45 Push-pull Connector (IP66) included
EDGE STORAGE:	Support for SD/SDHC/SDXC card Support for recording to dedicated network-attached storage (NAS); For SD card and NAS recommendations see www.axis.com
OPERATING CONDITIONS:	With 30 W midspan: -20 °C to 50 °C (-4 °F to 122 °F) With 60 W midspan: -50 °C to 50 °C (-58 °F to 122 °F) Maximum temperature (intermittent): 60 °C (140 °F) Arctic Temperature Control: Start-up as low as -40 °C (-40 °F) Humidity 10–100% RH (condensing)
APPROVALS:	EMC: EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, EN 55024, FCC Part 15 Subpart B Class A, ICES-003 Class A, VCCI Class A, RCM AS/NZS CISPR 22 Class A, KCC KN32 Class A, KN35 Safety: IEC/EN/UL 60950-1, IEC/EN/UL 60950-22 Environment: EN 50121-4, IEC 62236-4, IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60721-4-3, NEMA 250 Type 4X, IEC 60068-2-30, IEC 60068-2-60, IEC 60068-2-78, IEC/EN 60529 IP66, NEMA TS-2-2003 v02.06, Subsection 2.2.7, 2.2.8, 2.2.9; IEC 62262 IK10, ISO 4892-2 Midspan: EN 60950-1, GS, UL, cUL, CE, FCC, VCCI, CB, KCC, UL-AR
WEIGHT:	3.7 kg (8.2 lb.)
INCLUDED ACCESSORIES:	Axis High PoE 60 W midspan 1-port, RJ45 Push-pull Connector (IP66), Sunshield, Installation Guide, Windows decoder 1-user license

VIDEO MANAGEMENT: AXIS Camera Companion, AXIS Camera Station, Video
SOFTWARE: management software from Axis' Application Development
Partners available on www.axis.com/techsup/software

WARRANTY: Axis 3-year warranty and AXIS Extended Warranty option

Environmental Enclosure/Housing

The environmental enclosure shall be designed to physically protect the integrated camera from the outdoor environment and moisture via a sealed enclosure. If the option exists in the standard product line of the manufacturer, the assembly shall be supplied with an integral sun shield. The enclosure shall be fully water and weather resistant with a NEMA 4 rating or better.

The camera dome shall be constructed of distortion free acrylic or equivalent material that must not degrade from environmental conditions. The environmental housing shall include a camera-mounting bracket. In addition, the environmental housing shall include a heater, blower, and power surge protector. An integral fitting compatible with a standard 1-1/2 in (38.1 mm) NPT pipe, suitable for outdoor pendant mounting shall also be provided.

The enclosure shall be equipped with a heater controlled by a thermostat. The heater shall turn on when the temperature within the enclosure falls below 40° F (4.4°C). The heater shall turn off when the temperature exceeds 60°F (15.6°C). The heater will minimize internal fogging of the dome faceplate when the assembly is operated in cold weather.

In addition, a fan shall be provided as part of the enclosure. The fan will provide airflow to ensure effective heating and to minimize condensation.

The enclosure shall be equipped with a hermetically sealed, weatherproof connector, located near the top for external interface with power, video, and control feeds.

CCTV Dome Camera Mounting Supports

The Contractor shall furnish and install an Axis Pole Mount Bracket T91L61 (Part Number 5801-721) for camera installation on traffic signal mast arms and CCTV camera poles and stainless steel banding as required. The CAT5 cable shall be terminated inside the bracket by using the IEC punch down blocks.

Mounting supports shall be configured as shown on the camera support detail plans and as approved by the Engineer. Mount shall be of aluminum construction with enamel or polyester powder coat finish. Braces, supports, and hardware shall be stainless steel. Wind load rating shall be designed for sustained gusts up to 90 mph (145 km/hr), with a 30% gust factor. Load rating shall be designed to support up to 75 lb (334 N). For roof or structural post/light pole mounting, mount shall have the ability to swivel inward for servicing. The mounting flange shall use standard 1-1/2-inch (38.1 mm) NPT pipe thread.

Connecting Cables

The Contractor shall furnish and install outdoor rated, shielded CAT 5E cable at the locations shown on the plan sheets. The cable shall be terminated using the terminal block inside the camera bracket and the IDC connector and pre-formed IP66 rated RJ-45 connector on the camera end and a shielded RJ-45 connector in the cabinet. The Contractor shall test the cable prior after termination.

General

The Contractor shall prepare a shop drawing detailing the complete CCTV Dome Camera Assembly and installation of all components to be supplied for approval of the Engineer. Particular emphasis shall be given to the cabling and the interconnection of all of the components.

The Contractor shall install the CCTV dome camera assembly at the locations indicated in the Plans. The CCTV Dome Camera Assembly shall be mounted on a pole, wall, or other structure.

Testing

The Contractor shall test each installed CCTV Dome Camera Assembly. The test shall be conducted from the field cabinet using the standard communication protocol and a laptop computer. The Contractor shall verify that the camera can be fully exercised and moved through the entire limits of Pan, Tilt, Zoom, Focus and Iris adjustments, using both the manual control and presets. The Contractor shall maintain a log of all testing and the results. A representative of the Contractor and a representative of the Engineer shall sign the log as witnessing the results. Records of all tests shall be submitted to the Engineer prior to accepting the installation.

Method of Measurement. The closed-circuit television dome camera bid item will be measured for payment by the actual number of CCTV dome camera assemblies furnished, installed, tested, and accepted.

Basis of Payment. Payment will be made at the contract unit price for each CLOSED-CIRCUIT TELEVISION CAMERA including all equipment, material, testing, documentation, and labor detailed in the contract documents for this bid item.

FURNISH AND INSTALL METAL SCREEN

This work shall be in accordance with Sections 838 and 1070 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install a metal screen complete with all accessories specified below. The contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION or MAINTENANCE OF EXISTING HIGHWAY LIGHTING.

The Contractor shall remove the existing metal screen that is installed around the break-away couplings or leveling nuts and furnish and install a new metal screen that fits snugly around the breakaway couplings or leveling nuts between the bottom face of the pole base plate and top of the foundation to prevent rodent entry. No gaps greater than 0.125 inches will be allowed.

The contractor shall cover all holes and gaps greater than 0.25" diameter in and around the light pole base and anchor bolt slots by furnishing and installing all materials required to cover the holes and gaps.

All work shall be performed to the satisfaction of the Engineer.

Basis of Payment: This work shall be paid for at the contract unit price per each for FURNISH AND INSTALL METAL SCREEN which price shall be payment in full for all labor, equipment, and materials required to furnish and install the metal screen described above, complete.

SIGNAL VISOR, TUNNEL TYPE, 12 INCH

This work shall be in accordance with Sections 880 and 1078 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install a polycarbonate tunnel visor on an existing traffic signal head. The Contractor shall provide visors that are compatible with existing signal heads.

The tunnel visor shall be secured to the existing traffic signal head using a minimum of four fasteners.

The Contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION.

The Contractor shall remove the existing visor and dispose of it off site.

All work shall be performed to the satisfaction of the Engineer.

Basis of Payment: This work shall be paid for at the contract unit price per each for SIGNAL VISOR, TUNNEL TYPE, 12 INCH which price shall be payment in full for all labor, equipment, and materials required to furnish and install the signal head visor described above, complete.

KTQ 5A FUSE

This work shall be in accordance with Sections 821 and 1065 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install a fast-acting KTQ 5A mini fuse inside a fuse holder located inside an existing light pole.

The Contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING HIGHWAY LIGHTING.

The Contractor shall remove the existing fuse and dispose of it off site.

All work shall be performed to the satisfaction of the Engineer.

Basis of Payment: This work shall be paid for at the contract unit price per each for KTQ 5A FUSE which price shall be payment in full for all labor, equipment, and materials required to furnish and install the fuse described above, complete.

BUCHANAN FUSEHOLDER KIT

This work shall be in accordance with Sections 821 and 1065 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install a fuse holder inside an existing light pole.
The Contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING HIGHWAY LIGHTING.

The Contractor shall remove the existing fuse holder and dispose of it off site.

All work shall be performed to the satisfaction of the Engineer.

Basis of Payment: This work shall be paid for at the contract unit price per each for BUCHANAN FUSEHOLDER KIT which price shall be payment in full for all labor, equipment, and materials required to furnish and install the fuse holder kit described above, complete.

BREAKAWAY DEVICE, COUPLING WITH STAINLESS STEEL SCREEN

This work shall be in accordance with Sections 838 and 1070 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install one breakaway coupling with stainless steel or perforated aluminum screen on an existing light pole.

A minimum of four couplings will be installed per work order.

The Contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING HIGHWAY LIGHTING.

The Contractor shall remove the existing breakaway coupling and screen and dispose of it off site.

The proposed coupling shall be constructed from galvanized steel and shall be compatible with the existing light pole foundation.

The screen shall fit snugly around the breakaway couplings between the bottom face of the pole base plate and top of the foundation to prevent rodent entry. No gaps greater than 0.125 inches will be allowed.

The contractor shall cover all holes and gaps greater than 0.25" diameter in and around the light pole base and anchor bolt slots by furnishing and installing all materials required to cover the holes and gaps.

All work shall be performed to the satisfaction of the Engineer.

Basis of Payment: This work shall be paid for at the contract unit price per each for BREAKAWAY DEVICE, COUPLING WITH STAINLESS STEEL SCREEN which price shall be payment in full for all labor, equipment, and materials required to furnish and install the breakaway device and screen as described above, complete.

BREAKAWAY DEVICE, TRANSFORMER BASE, 15 INCH BOLT CIRCLE

This work shall be in accordance with Sections 838 and 1070 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install an aluminum transformer base on an existing or proposed light pole.

The Contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING HIGHWAY LIGHTING.

The Contractor shall remove the existing transformer base and dispose of it off site.

The proposed transformer base shall be constructed from aluminum and shall be compatible with the light pole and light pole foundation.

All work shall be performed to the satisfaction of the Engineer.

Basis of Payment: This work shall be paid for at the contract unit price per each for BREAKAWAY DEVICE, TRANSFORMER BASE, 15 INCH BOLT CIRCLE which price shall be payment in full for all labor, equipment, and materials required to furnish and install the breakaway device as described above, complete.

HANDHOLE, COVER ONLY (NEENAH R-6660-JP)

This work shall be in accordance with Sections 814 and 1088 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install a steel handhole cover on an existing concrete handhole.

The Contractor shall ground/safety bond the handhole cover in accordance with NEC requirements.

The handhole shall be a NEENAH FOUNDRY model R-6660-JP. The Contractor shall verify that the proposed handhole lid is compatible with the existing handhole frame.

The Contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION.

The Contractor shall remove the existing handhole cover and dispose of it off site.

Basis of Payment: This work shall be paid for at the contract unit price per each for HANDHOLE, COVER ONLY (NEENAH R-6660-JP) which price shall be payment in full for all labor, equipment, and materials required to furnish and install the handhole cover described above, complete.

LOAD SWITCH, NEMA

This work shall be in accordance with Sections 857 and 1074 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install a load switch inside a traffic signal cabinet.

The load switch shall be a RENO traffic modem LS-200 or approved equal.

The Contractor shall label the load switch in with the cabinet phase.

The Contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION.

The Contractor shall remove the existing load switch and dispose of it off site.

Basis of Payment: This work shall be paid for at the contract unit price per each for LOAD SWITCH, NEMA which price shall be payment in full for all labor, equipment, and materials required to furnish and install the load switch described above, complete.

GFCI 20 AMP DUPLEX RECEPTACLE

This work shall be in accordance with Sections 857 and 1074 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install a GFCI 20Amp receptacle inside an existing traffic signal, lighting, or ITS cabinet.

The Department may request that the Contractor furnish a standard non-GFCI receptacle to be used to power equipment instead of a GFCI receptacle.

The Contractor shall replace the existing receptacle or wire in a new receptacle at the Department's request. The Contractor shall furnish an outlet box, wiring, and all materials required to install a new equipment receptacle in accordance with NEC requirements.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION or MAINTENANCE OF EXISTING HIGHWAY LIGHTING or MAINTENANCE OF EXISTING HIGH MAST LIGHT TOWERS.

The Contractor shall remove the existing receptacle and dispose of it off site.

Basis of Payment: This work shall be paid for at the contract unit price per each for GFCI 20 AMP DUPLEX RECEPTACLE which price shall be payment in full for all labor, equipment, and materials required to furnish and install the duplex receptacle as described above, complete.

REMOVE AND REPLACE BATTERIES FOR UNINTERRUPTABLE POWER SUPPLY, EXTENDED

This work shall be in accordance with Sections 862 and 1074 of the Standard Specifications except as modified herein.

The Contractor shall furnish and install four new batteries inside an existing battery backup cabinet.

The Contractor shall remove the existing batteries and recycle them at a certified recycling center.

The Contractor shall inspect the battery cables and remove any signs of corrosion from the cables.

The Contractor shall connect the batteries to the UPS and ensure that the battery heater mats are plugged in and operational.

The Contractor shall label each battery with the installation dates using a permanent black marker or other permanent labeling system.

The batteries shall be AlphaCell XTV (100Ah, AGM) batteries manufactured by Alpha and have a five-year full replacement warranty.

Upon installation, the Contractor shall measure the battery voltages and test the existing battery backup system to ensure that it is operating correctly.

The Contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

Basis of Payment: This work shall be paid for at the contract unit price per each for REMOVE AND REPLACE BATTERIES FOR UNINTERRUPTABLE POWER SUPPLY, EXTENDED which price shall be payment in full for all labor, equipment, and materials required to furnish and install the batteries described above, complete.

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION

This work shall be in accordance with the applicable Articles of Sections 850 of the Standard Specifications.

This work shall consist of the following items:

- The locations of the existing traffic signal installations to be maintained are listed in the plans. IDOT personnel will supply the contractor with a work order prior to the contractor performing any maintenance.

- The Contractor shall travel to the work site and transport all material and equipment needed to complete the maintenance work. The cost of all labor, materials, and equipment required to complete the maintenance and inspection work shall be included in this pay item. Travel time to/from the work site will not be paid separately and shall be included in this pay item.
- The Contractor shall inspect each traffic signal installation utilizing the attached inspection sheet.
- The Contractor shall perform all routine maintenance procedures that are detailed on the check sheet and complete all entries.
- The Contractor shall supply all required materials and perform all other work that is required to complete the items listed on the check sheet.
- The Contractor shall perform all work to the satisfaction of the Engineer.
- Check Sheet will be provided with each work order issued.

If at the time of service being performed, additional work of a minor nature (not to exceed \$500) is needed, the Contractor shall proceed with that work. For work in excess of \$500, the Contractor shall contact the Department District Contact before proceeding with the additional work. Pay item work performed will be paid in accordance with the pay item basis of payment. Extra work will be paid for in accordance with Article 109.04 of the Standard Specifications.

Basis of Payment: This work shall be paid for at the contract unit price per each per intersection for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION which price shall be payment in full for all labor, equipment, and materials required to complete the traffic signal inspection and maintenance work described, complete.

TRAFFIC SIGNAL MAINTENANCE CHECKSHEET

IDOT District 3

Intersection Number: _____

Location: _____

Inspection Date: _____

The following items shall be inspected by the contractor:

1. _____ Check signal head clearances, leveling, and aiming. Adjust as needed for optimum viewing and adequate clearance.

Comments: _____

2. _____ Check masking (programmable heads).

Comments: _____

3. ____ Clean LED signal and pedestrian head faces.

Comments: _____

4. ____ Check all mounting brackets and adjust and tighten if necessary.

Comments: _____

5. ____ Check backplates and resecure as necessary.

Comments: _____

6. _____ Check operation of all pedestrian pushbuttons. Ensure that the proper indications come up. Notify IDOT of any malfunctioning push buttons.

Comments: _____

7. _____ Check mast arm for cracked welds and report any mast arm damage to the Department (dents, corrosion, etc.)

Comments: _____

8. ____ Visually inspect electric service installation. Test battery backup system operation by using test circuit breaker or removing AC power. Visually inspect batteries for signs of damage and leakage.

Comments: _____

9. ____ Inspect and clean existing PTZ and video vehicle detection cameras per manufacturers guidelines.

Comments: _____

10. ____ Test the Conflict Monitor with the latest version of an ATSI PCMT 8000 Conflict Monitor Tester or equal.

Comments: _____

Note All Other Repairs Made Or Needed: _____

Inspected By: _____

Date: _____

MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION

This work shall be in accordance with the applicable Articles of Sections 850 of the Standard Specifications.

This work shall consist of the following items:

- The locations of the existing flashing beacon installations to be maintained are listed in the plans. IDOT personnel will supply the contractor with a work order prior to the contractor performing any maintenance.
- The Contractor shall travel to the work site and transport all material and equipment needed to complete the maintenance work. The cost of all labor, materials, and equipment required to complete the maintenance and inspection work shall be included in this pay item. Travel time to/from the work site will not be paid separately and shall be included in this pay item.
- The Contractor shall inspect each flashing installation utilizing the attached inspection sheet.
- The Contractor shall perform all routine maintenance procedures that are detailed on the check sheet and complete all entries.
- The Contractor shall supply all required materials and perform all other work that is required to complete the items listed on the check sheet.
- The Contractor shall perform all work to the satisfaction of the Engineer.
- Check Sheet will be provided with each work order issued.

If at the time of service being performed, additional work of a minor nature (not to exceed \$500) is needed, the Contractor shall proceed with that work. For work in excess of \$500, the Contractor shall contact the Department District Contact before proceeding with the additional work. Pay item work performed will be paid in accordance with the pay item basis of payment. Extra work will be paid for in accordance with Article 109.04 of the Standard Specifications.

Basis of Payment: This work shall be paid for at the contract unit price per each per intersection for MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION which price shall be payment in full for all labor, equipment, and materials required to complete the flashing beacon inspection and maintenance work described, complete.

FLASHING BEACON MAINTENANCE CHECKSHEET

IDOT District 3

Intersection Number: _____

Location: _____

Inspection Date: _____

The following items shall be inspected by the contractor:

1. _____ Check signal head clearances, leveling, and aiming. Adjust as needed for optimum viewing and adequate clearance. Span wire mounted traffic signal heads shall have a minimum clearance of 17 ft. above the highest point of the roadway.

Comments: _____

2. _____ Clean LED flasher head faces.

Comments: _____

3. _____ Check all traffic signal head mounting brackets and span wire assembly hardware. Tighten if needed.

Comments: _____

4. _____ Check backplates and resecure as necessary.

Comments: _____

5. _____ Check electrical service installation and note any deficiencies.

Comments: _____

Note All Other Repairs Made Or Needed: _____

Inspected

By: _____

Date: _____

MAINTENANCE OF EXISTING HIGH MAST LIGHT TOWERS

This work shall be in accordance with the applicable Articles of Sections 850 of the Standard Specifications.

This work shall consist of the following items:

- The locations of the existing high mast light tower installations to be maintained are listed in the plans. IDOT personnel will supply the contractor with a work order prior to the contractor performing any maintenance.
- The Contractor shall travel to the work site and transport all material and equipment needed to complete the maintenance work. The cost of all labor, materials, and equipment required to complete the maintenance and inspection work shall be included in this pay item. Travel time to/from the work site will not be paid separately and shall be included in this pay item.
- The Contractor shall inspect each high mast light tower installation utilizing the attached inspection sheet.
- The Contractor shall perform all routine maintenance procedures that are detailed on the check sheet and complete all entries.
- The Contractor shall supply all required materials and perform all other work that is required to complete the items listed on the check sheet.
- The Contractor shall perform all work to the satisfaction of the Engineer.
- Check sheet will be provided with each work order issued.

If at the time of service being performed, additional work of a minor nature (not to exceed \$500) is needed, the Contractor shall proceed with that work. For work in excess of \$500, the Contractor shall contact the Department District Contact before proceeding with the additional work. Pay item work performed will be paid in accordance with the pay item basis of payment. Extra work will be paid for in accordance with Article 109.04 of the Standard Specifications.

Basis of Payment: This work shall be paid for at the contract unit price per each per HMLT for MAINTENANCE OF EXISTING HIGH MAST LIGHT TOWERS which price shall be payment in full for all labor, equipment, and materials required to complete the HMLT inspection and maintenance work described, complete.

MAINTENANCE OF EXISTING HIGH MAST LIGHT TOWERS CHECKSHEET

District 3

County: _____

Route:

Location: _____

Date Inspected: _____

Inspected

By:

Tower Number					
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TOWER

1. Tower vents - check and clean					
2. Padlocks - check and lubricate					
3. Power cord caps - check connections					
4. Winch assembly - check and lubricate					
5. Replace bad locks					
6. Lubricate locks, even new locks. Spray graphite into the tumbler mechanism. Insert and remove key to spread graphite. Spray penetrating oil into shank.					
7. Check and repair screening as necessary.					
8. Check for rodent damage.					
9. IMPORTANT: Check oil level in crank case before lowering ring.					
10. Lower ring. (IMPORTANT. Stand away from tower whenever ring is moving in case ring falls.) Check for fraying of cable as cable unwinds.					
11. If ring has locking mechanism at top, make sure all locks are holding the ring. If ring is held up by motor, DO NOT release tension on cable to put weight on safety chains; that will allow ring to sway and fray cables.					
12. Make sure to install safety chains, if they are available.					
13. Lock tower door					
14. Inspect tower for cracks or structural damage.					
15. Inspect tower base weld for damage or deterioration.					
16. Fill out and send in inspection report for each tower.					

17. Clean out any nests. PLACE HANDFUL OF MOTHBALLS IN EACH TOWER BASE (This will repel rodents).					
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FOUNDATION

1. Check for spalling and cracks					
2. Check anchor bolts					
2. Check outside ground connection					
4. Ground Rod Reading					

LOWER DEVICES

1. Check power cable for wear					
2. Check kellem grip					
3. Check turnbuckle					
4. Check wire insulation					
5. Check safety cables					
6. Check hoist					
7. Check electrical ring connections					
8. Tighten until tightening ring is secure against stops					
9. Attach winch cable safety mechanism.					

LIGHTING RING

1. Visual check					
2. Number of luminaries					
3. Replace bulbs or luminaires as needed.					
4. Check around ring for cable fraying. Report all damage to cables.					
5. Ring - check level and lubricate moving parts.A34					
6. Hoist and support cables - check for wear.					
7. Check for bad or flat rollers.					

CABINET

1. Spray graphite into the tumbler mechanism of the lock. Insert and remove key to spread graphite.					
2. Check for rodent damage.					
3. Tighten loose screws.					

SERVICE
INSTALLATION

1. Replace bad locks.					
2. Lubricate locks, even new locks. Spray graphite into the tumbler mechanism. Insert and remove key to spread graphite. Spray penetrating oil into shank.					
3. Check for rodent damage.					
4. Tighten screws					

Comments:

LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION G

This work shall be in accordance with Sections 821 and 1067 of the Supplemental Specifications except as modified herein.

The Contractor shall furnish and install a LED luminaire on an existing or proposed light pole.

The Contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

The Contractor shall refer to the Luminaire Performance Tables for help in selecting the correct LED luminaire replacement luminaire of an HPS luminaire.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION or MAINTENANCE OF EXISTING HIGHWAY LIGHTING OR MAINTENANCE OF EXISTING HIGH MAST LIGHT TOWERS.

The Contractor shall remove the existing luminaire and dispose of it off site.

Basis of Payment: This work shall be paid for at the contract unit price per each for LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION G which price shall be payment in full for all labor, equipment, and materials required to furnish and install the LED luminaire described above, complete.

LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H

This work shall be in accordance with Sections 821 and 1067 of the Supplemental Specifications except as modified herein.

The Contractor shall furnish and install a LED luminaire on an existing or proposed light pole.

The Contractor shall refer to the Luminaire Performance Tables for help in selecting the correct LED luminaire replacement luminaire of an HPS luminaire.

The Contractor shall furnish hardware and all materials required for installation at a location as specified by the Department.

Travel time to and from the work site will be paid separately under the contract pay items for labor and equipment unless the pay item work is being performed in conjunction with MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION or MAINTENANCE OF EXISTING HIGHWAY LIGHTING or MAINTENANCE OF EXISTING HIGH MAST LIGHT TOWERS.

The Contractor shall remove the existing luminaire and dispose of it off site.

Basis of Payment: This work shall be paid for at the contract unit price per each for LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H which price shall be payment in full for all labor, equipment, and materials required to furnish and install the LED luminaire described above, complete.

LUMINAIRE PERFORMANCE TABLES



Illinois Department
of Transportation

Luminaire Performance Table



Project

Date	Contract Number	Section Number	County
01/19/21	N/A	N/A	Various
Marked Route Number		Municipality	
Various		Various	

Roadway

Lane Width	# of Lanes	Median Width	I.E.S. Surface Classification	Q-Zero Value
12	3	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set-Back	Number of Luminaires (Highmast & Sign Lighting Only)
45 ft	15 ft	15 ft	N/A

Luminaire

Description	I.E.S. Lateral Distribution	I.E.S. Vertical Distribution	
Replacement For 250W Horizontal Mount	Type III	Medium	
Total Light Loss Factor (LLF)	B-U-G Rating	Shields	Dimming Protocol
0.7	U = 0	N/A	0-10V

Layout

Spacing (to Nearest 5 ft)	Configuration (Opposite, Staggered, 1 Sided, or Median)
160 ft	1 Side

Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}		
0.9 to 1.4	less than or equal to 3.0:1		
Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_v/L_{AVE}
0.6 to 0.9	less than or equal to 3.5:1	less than or equal to 6.0:1	less than or equal to 0.3:1

Light Trespass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_v
N/A	N/A	N/A

Notes

1. Set-Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
2. Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to the roadway.
3. Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
4. Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

Calculations shall be performed in one direction only.

Compliance with performance criteria shall be held to one significant digit.

The luminaire performance table defines the luminaire only. It does not necessarily represent the mounting height, arm length, or setback for which the lighting unit is to be installed. Refer to lighting plans for installation.



Luminaire Performance Table



Project

Date	Contract Number	Section Number	County
01/19/21	N/A	N/A	Various

Marked Route Number	Municipality
Various	Various

Roadway

Lane Width	# of Lanes	Median Width	I.E.S. Surface Classification	Q-Zero Value
12	3	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set-Back	Number of Luminaires (Highmast & Sign Lighting Only)
45 ft	1 ft	30 ft	N/A

Luminaire

Description	I.E.S. Lateral Distribution	I.E.S. Vertical Distribution	
Replacement For 250W Multi-Mount	Type III	Medium	
Total Light Loss Factor (LLF)	B-U-G Rating	Shields	Dimming Protocol
0.7	U = 0	N/A	0-10V

Layout

Spacing (to Nearest 5 ft)	Configuration (Opposite, Staggered, 1 Sided, or Median)
145 ft	1 Sided

Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}		
0.9 to 1.4	less than or equal to 3.0:1		
Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_v/L_{AVE}
0.6 to 0.9	less than or equal to 3.5:1	less than or equal to 6.0:1	less than or equal to 0.3:1

Light Trespass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_v
N/A	N/A	N/A

Notes

1. Set-Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
2. Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to the roadway.
3. Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
4. Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

Replacement luminaire shall be mounted horizontally.

Calculations shall be performed in one direction only.

Compliance with performance criteria shall be held to one significant digit.

The luminaire performance table defines the luminaire only. It does not necessarily represent the mounting height, arm length, or setback for which the lighting unit is to be installed. Refer to lighting plans for installation.



Luminaire Performance Table



Project

Date	Contract Number	Section Number	County
01/19/21	N/A	N/A	Various
Marked Route Number		Municipality	
Various		Various	

Roadway

Lane Width	# of Lanes	Median Width	I.E.S. Surface Classification	Q-Zero Value
12	4	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set-Back	Number of Luminaires (Highmast & Sign Lighting Only)
45 ft	15 ft	15 ft	N/A

Luminaire

Description	I.E.S. Lateral Distribution	I.E.S. Vertical Distribution	
Replacement For 400W Horizontal Mount	Type III	Medium	
Total Light Loss Factor (LLF)	B-U-G Rating	Shields	Dimming Protocol
0.7	U = 0	N/A	0-10V

Layout

Spacing (to Nearest 5 ft)	Configuration (Opposite, Staggered, 1 Sided, or Median)
240 ft	1 Sided

Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}		
0.9 to 1.4	less than or equal to 3.0:1		
Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_v/L_{AVE}
0.6 to 0.9	less than or equal to 3.5:1	less than or equal to 6.0:1	less than or equal to 0.3:1

Light Trespass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_v
N/A	N/A	N/A

Notes

1. Set-Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
2. Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to the roadway.
3. Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
4. Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

Calculations shall be performed in one direction only.

Compliance with performance criteria shall be held to one significant digit.

The luminaire performance table defines the luminaire only. It does not necessarily represent the mounting height, arm length, or setback for which the lighting unit is to be installed. Refer to lighting plans for installation.



Luminaire Performance Table



Project

Date	Contract Number	Section Number	County
01/19/21	N/A	N/A	Various

Marked Route Number	Municipality
Various	Various

Roadway

Lane Width	# of Lanes	Median Width	I.E.S. Surface Classification	Q-Zero Value
12	4	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set-Back	Number of Luminaires (Highmast & Sign Lighting Only)
45 ft	1 ft	30 ft	N/A

Luminaire

Description	I.E.S. Lateral Distribution	I.E.S. Vertical Distribution	
Replacement For 400W Multi-Mount	Type III	Medium	
Total Light Loss Factor (LLF)	B-U-G Rating	Shields	Dimming Protocol
0.7	U = 0	N/A	0-10V

Layout

Spacing (to Nearest 5 ft)	Configuration (Opposite, Staggered, 1 Sided, or Median)
155 ft	1 Sided

Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}		
0.9 to 1.4	less than or equal to 3.0:1		
Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_v/L_{AVE}
0.6 to 0.9	less than or equal to 3.5:1	less than or equal to 6.0:1	less than or equal to 0.3:1

Light Trespass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_v
N/A	N/A	N/A

Notes

1. Set-Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
2. Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to the roadway.
3. Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
4. Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

Replacement luminaire shall be mounted horizontally.

Calculations shall be performed in one direction only.

Compliance with performance criteria shall be held to one significant digit.

The luminaire performance table defines the luminaire only. It does not necessarily represent the mounting height, arm length, or setback for which the lighting unit is to be installed. Refer to lighting plans for installation.

MAINTAIN EXISTING HIGHWAY LIGHTING

This work shall be in accordance with the applicable Articles of Sections 850 of the Standard Specifications.

This work shall consist of the following items:

- The locations of the existing highway lighting installations to be maintained are listed in the plans. IDOT personnel will supply the contractor with a work order prior to the contractor performing any maintenance.
- The Contractor shall travel to the work site and transport all material and equipment needed to complete the maintenance work. The cost of all labor, materials, and equipment required to complete the maintenance and inspection work shall be included in this pay item. Travel time to/from the work site will not be paid separately and shall be included in this pay item.
- The Contractor shall inspect each highway lighting installation utilizing the attached inspection sheet.
- The Contractor shall perform all routine maintenance procedures that are detailed on the check sheet and complete all entries.
- The Contractor shall supply all required materials and perform all other work that is required to complete the items listed on the check sheet.
- The Contractor shall perform all work to the satisfaction of the Engineer.
- Check sheet will be provided with each work order issued.

If at the time of service being performed, additional work of a minor nature (not to exceed \$500) is needed, the Contractor shall proceed with that work. For work in excess of \$500, the Contractor shall contact the Department District Contact before proceeding with the additional work. Pay item work performed will be paid in accordance with the pay item basis of payment. Extra work will be paid for in accordance with Article 109.04 of the Standard Specifications.

Basis of Payment: This work shall be paid for at the contract unit price per each per light pole for **MAINTAIN EXISTING HIGHWAY LIGHTING** which price shall be payment in full for all labor, equipment, and materials required to complete the highway lighting inspection and maintenance work described, complete.

Various Routes
Section D3 Lighting Repair 2025-4
Kankakee County
Contract No. 66P99

HIGHWAY LIGHTING MAINTENANCE CHECKSHEET - IDOT DISTRICT 3

Date Inspected: _____ Inspected By: _____ Intersection: _____
County & City: _____ Contractor Or Agency: _____ Quadrant: _____

INSPECT BASE OF POLE			
	INSPECTED	DEFECT FOUND	COMMENTS
1. Permanently remove all shrouds. Remove anchor bolt covers if present and inspect for corrosion. If none found <u>reinstall</u> or follow steps below. <i>Apply an anti-seize compound to all of the anchor bolts' exposed threaded surfaces.</i>			
2. Check for corrosion or disturbance at base. Inspect inside pole handhole for corrosion with flashlight. <i>Clean out any buildup of corrosion or other material under the base.</i>			
3. Remove grout at base of pole, reinstall or install rodent mesh if missing or damaged. <i>Examine for grout that blocks air flow at the base of the pole. If present, remove grout with a hand chipping hammer and retrofit rodent mesh.</i>			
4. Sound pole around base. <i>Hit the pole around base with varying force with the flat side of a ball peen hammer. If pole 'thuds' instead of 'rings' may be <u>corrosion</u> at the base. <u>Further</u> investigation will be required.</i>			
INSPECT FOUNDATION & ANCHOR BOLTS			
	INSPECTED	DEFECT FOUND	COMMENTS
1. Foundation <i>Check for spalls, cracks, and deterioration. Indicate diameter in comments section.</i>			
2. Anchor Bolts <i>Visually inspect for loose nuts and damaged anchor bolts and leveling nuts</i> <i>Strike anchor bolts with a hammer. If the bolts do not 'ring' they are suspect for corrosion and concrete deterioration.</i>			
LIGHT POLE & LIGHT POLE CONNECTIONS			
	INSPECTED	DEFECT FOUND	COMMENTS
1. Visually inspect the light pole connections where the arm bolts to the pole <i>Examine for cracking by bucket truck or by number 5 or 7 power binoculars and pole caps.</i>			
2. Visually inspect vertical and horizontal <u>structural</u> elements <i>Examine for corrosion and or impact damage.</i> <i>Look for open holes on mast or arm.</i> <i>Examine luminaire arm extension if present.</i>			
3. Pictures <i>Take a minimum of 4 to 8 <u>digital</u> pictures of the light pole, foundation, anchor bolts, base of pole, and areas of concern if found.</i> <i>Send pictures labeled with applicable information to IDOT D3 Signals Unit digitally.</i>			
4. Inspect Luminaire (if applicable) <i>Test for proper operation of luminaire.</i>			
Additional Comments: _____			
Instructions Indicate inspected and acceptable with initials under "INSPECTED" column. Note any defects with description and explanation under "DEFECT FOUND" and "COMMENTS" column. Contact District 3 Signals Unit if any issues are discovered immediately at: 815-434-6131			

AUTOMATED FLAGGER ASSISTANCE DEVICES (BDE)

Effective: January 1, 2008

Revised: April 1, 2023

Description. This work shall consist of furnishing and operating automated flagger assistance devices (AFADs) as part of the work zone traffic control and protection for two-lane highways where two-way traffic is maintained over one lane of pavement in segments where no sideroads or entrances require deployment of additional flaggers. Use of these devices shall be at the option of the Contractor.

Equipment. AFADs shall be the STOP/SLOW or Red/Yellow Lens type mounted on a trailer or moveable cart meeting the requirements of the MUTCD and NCHRP 350 or MASH 2016, Category 4.

General. AFADs shall be placed at each end of the traffic control, where a flagger is shown on the plans. The AFAD shall be setup within five degrees of vertical.

Flagger symbol signs as shown on the plans shall be replaced with "BE PREPARED TO STOP" signs when the AFAD is in operation.

Personal communication devices shall not be used to operate the AFAD.

Flagging Requirements. Flaggers and flagging requirements shall be according to Article 701.13 of the Standard Specifications and the following.

Each AFAD shall be operated by a flagger trained to operate the specific AFAD to be deployed. A minimum of two flaggers shall be on site at all times during operation. Each flagger shall be positioned outside the lane of traffic and near each AFAD's location.

Flagging equipment required for traditional flagging shall be available near each AFAD location in the event of AFAD equipment malfunction/failure.

For nighttime flagging, the AFAD and flagger shall be illuminated according to Article 701.13 of the Standard Specifications.

When not in use, AFADs will be considered non-operating equipment and shall be stored according to Article 701.11 of the Standard Specifications.

Basis of Payment. This work will not be paid for separately but shall be considered as included in the cost of the various traffic control items included in the contract.

CEMENT, FINELY DIVIDED MINERALS, ADMIXTURES; CONCRETE, AND MORTAR (BDE)

Effective: January 1, 2025

Revise the first paragraph of Article 285.05 of the Standard Specifications to read:

“285.05 Fabric Formed Concrete Revetment Mat. The grout shall consist of a mixture of cement, fine aggregate, and water so proportioned and mixed as to provide a pumpable slurry. Fly ash or ground granulated blast furnace (GGBF) slag, and concrete admixtures may be used at the option of the Contractor. The grout shall have an air content of not less than 6.0 percent nor more than 9.0 percent of the volume of the grout. The mix shall obtain a compressive strength of 2500 psi (17,000 kPa) at 28 days according to Article 1020.09.”

Revise Article 302.02 of the Standard Specifications to read:

“302.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Hydrated Lime	1012.01
(d) By-Product, Hydrated Lime	1012.02
(e) By-Product, Non-Hydrated Lime	1012.03
(f) Lime Slurry	1012.04
(g) Fly Ash	1010
(h) Soil for Soil Modification (Note 1)	1009.01
(i) Bituminous Materials (Note 2)	1032

Note 1. This soil requirement only applies when modifying with lime (slurry or dry).

Note 2. The bituminous materials used for curing shall be emulsified asphalt RS-2, CRS-2, HFE 90, or HFE 150; rapid curing liquid asphalt RC-70; or medium curing liquid asphalt MC-70 or MC-250.”

Revise Article 312.07(c) of the Standard Specifications to read:

“(c) Cement1001”

Add Article 312.07(i) of the Standard Specifications to read:

“(i) Ground Granulated Blast Furnace (GGBF) Slag1010”

Revise the first paragraph of Article 312.09 of the Standard Specifications to read:

“312.09 Proportioning and Mix Design. At least 60 days prior to start of placing CAM II, the Contractor shall submit samples of materials to be used in the work for proportioning and testing. The mixture shall contain a minimum of 200 lb (120 kg) of cement per cubic yard (cubic meter). Cement may be replaced with fly ash or ground granulated blast furnace (GGBF) slag according to Article 1020.05(c)(1) or 1020.05(c)(2), respectively, however the minimum cement content in the mixture shall be 170 lbs/cu yd (101 kg/cu m). Blends of coarse and fine aggregates will be permitted, provided the volume of fine aggregate does not exceed the volume of coarse aggregate. The Engineer will determine the proportions of materials for the mixture according to the “Portland Cement Concrete Level III Technician Course” manual. However, the Contractor may substitute their own mix design. Article 1020.05(a) shall apply, and a Level III PCC Technician shall develop the mix design.”

Revise Article 352.02 of the Standard Specifications to read:

“352.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement (Note 1)	1001
(b) Soil for Soil-Cement Base Course	1009.03
(c) Water	1002
(d) Bituminous Materials (Note 2)	1032

Note 1. Bulk cement may be used for the traveling mixing plant method if the equipment for handling, weighing, and spreading the cement is approved by the Engineer.

Note 2. The bituminous materials used for curing shall be emulsified asphalt RS-2, CRS-2, HFE 90, or HFE 150; rapid curing liquid asphalt RC-70; or medium curing liquid asphalt MC-70 or MC-250.”

Revise Article 404.02 of the Standard Specifications to read:

“404.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fine Aggregate	1003.08
(d) Bituminous Material (Tack Coat)	1032.06
(e) Emulsified Asphalts (Note 1) (Note 2)	1032.06
(f) Fiber Modified Joint Sealer	1050.05
(g) Additives (Note 3)	

Note 1. When used for slurry seal, the emulsified asphalt shall be CQS-1h according to Article 1032.06(b).

Note 2. When used for micro-surfacing, the emulsified asphalt shall be CQS-1hP according to Article 1032.06(e).

Note 3. Additives may be added to the emulsion mix or any of the component materials to provide the control of the quick-traffic properties. They shall be included as part of the mix design and be compatible with the other components of the mix.

Revise the last sentence of the fourth paragraph of Article 404.08 of the Standard Specifications to read:

“When approved by the Engineer, the sealant may be dusted with fine sand, cement, or mineral filler to prevent tracking.”

Revise Note 2 of Article 516.02 of the Standard Specifications to read:

“Note 2. The sand-cement grout mix shall be according to Section 1020 and shall be a 1:1 blend of sand and cement comprised of a Type I, IL, or II cement at 185 lb/cu yd (110 kg/cu m). The maximum water cement ratio shall be sufficient to provide a flowable mixture with a typical slump of 10 in. (250 mm).”

Revise Note 2 of Article 543.02 of the Standard Specifications to read:

“Note 2. The grout mixture shall be 6.50 hundredweight/cu yd (385 kg/cu m) of cement plus fine aggregate and water. Fly ash or ground granulated blast furnace (GGBF) slag may replace a maximum of 5.25 hundredweight/cu yd (310 kg/cu m) of the cement. The water/cement ratio, according to Article 1020.06, shall not exceed 0.60. An air-entraining admixture shall be used to produce an air content, according to Article 1020.08, of not less than 6.0 percent nor more than 9.0 percent of the volume of the grout. The Contractor shall have the option to use a water-reducing or high range water-reducing admixture.”

Revise Article 583.01 of the Standard Specifications to read:

“**583.01 Description.** This work shall consist of placing cement mortar along precast, prestressed concrete bridge deck beams as required for fairing out any unevenness between adjacent deck beams prior to placing of waterproofing membrane and surfacing.”

Revise Article 583.02(a) of the Standard Specifications to read:

“(a) Cement1001”

Revise the first paragraph of Article 583.03 of the Standard Specifications to read:

“**583.03 General.** This work shall only be performed when the air temperature is 45 °F (7 °C) and rising. The mixture for cement mortar shall consist of three parts sand to one part cement by volume. The amount of water shall be no more than that necessary to produce a workable, plastic mortar.”

Revise Note 2/ in Article 1003.01(b) of the Standard Specifications to read:

“2/ Applies only to sand. Sand exceeding the colorimetric test standard of 11 (Illinois Modified AASHTO T 21) will be checked for mortar making properties according to Illinois Modified ASTM C 87 and shall develop a compressive strength at the age of 14 days when using Type I, IL, or II cement of not less than 95 percent of the comparable standard.

Revise the second sentence of Article 1003.02(e)(1) of the Standard Specifications to read:

“The test will be performed with Type I, IL, or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater.”

Revise the first sentence of the second paragraph of Article 1003.02(e)(3) of the Standard Specifications to read:

“The ASTM C 1293 test shall be performed with Type I, IL, or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.80 percent or greater.”

Revise the second sentence of Article 1004.02(g)(1) of the Standard Specifications to read:

“The test will be performed with Type I, IL, or II portland cement having a total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) of 0.90 percent or greater.”

Revise Article 1017.01 of the Standard Specifications to read:

“1017.01 Requirements. The mortar shall be high-strength according to ASTM C 387 and shall have a minimum 80.0 percent relative dynamic modulus of elasticity when tested by the Department according to Illinois Modified AASHTO T 161 or AASHTO T 161 when tested by an independent lab. The high-strength mortar shall have a water-soluble chloride ion content of less than 0.40 lb/cu yd (0.24 kg/cu m). The test shall be performed according to ASTM C 1218, and the high-strength mortar shall have an age of 28 to 42 days at the time of test. The ASTM C 1218 test shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department. Mixing of the high-strength mortar shall be according to the manufacturer’s specifications. The Department will maintain a qualified product list.”

Revise the fourth sentence of Article 1018.01 of the Standard Specifications to read:

“The ASTM C 1218 test shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department.”

Revise Article 1019.02 of the Standard Specifications to read:

“1019.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fine Aggregate for Controlled Low-Strength Material (CLSM)	1003.06
(d) Fly Ash	1010
(e) Ground Granulated Blast Furnace (GGBF) Slag.....	1010
(f) Admixtures (Note 1)	

Note 1. The air-entraining admixture may be in powder or liquid form. Prior to approval, a CLSM air-entraining admixture will be evaluated by the Department. The admixture shall be able to meet the air content requirements of Mix 2. The Department will maintain a qualified product list.”

Revise Article 1019.05 of the Standard Specifications to read:

“1019.05 Department Mix Design. The Department mix design shall be Mix 1, 2, or 3 and shall be proportioned to yield approximately one cubic yard (cubic meter).

Mix 1	
Cement	50 lb (30 kg)
Fly Ash – Class C or F, and/or GGBF Slag	125 lb (74 kg)
Fine Aggregate – Saturated Surface Dry	2900 lb (1720 kg)
Water	50-65 gal (248-322 L)
Air Content	No air is entrained

Mix 2	
Cement	125 lb (74 kg)
Fine Aggregate – Saturated Surface Dry	2500 lb (1483 kg)
Water	35-50 gal (173-248 L)
Air Content	15-25 %

Mix 3	
Cement	40 lb (24 kg)
Fly Ash – Class C or F, and/or GGBF Slag	125 lb (74 kg)
Fine Aggregate – Saturated Surface Dry	2500 lb (1483 kg)
Water	35-50 gal (179-248 L)
Air Content	15-25 %”

Revise Article 1020.04, Table 1, Note (8) of the Standard Specifications to read:

“(8) In addition to the Type III portland cement, 100 lb/cu yd of ground granulated blast-furnace slag and 50 lb/cu yd of microsilica (silica fume) shall be used. For an air temperature greater than 85 °F, the Type III portland cement may be replaced with Type I, IL, or II portland cement.”

Revise Article 1020.04, Table 1 (Metric), Note (8) of the Standard Specifications to read:

“(8) In addition to the Type III portland cement, 60 kg/cu m of ground granulated blast-furnace slag and 30 kg/cu m of microsilica (silica fume) shall be used. For an air temperature greater than 30 °C, the Type III portland cement may be replaced with Type I, IL, or II portland cement.”

Revise the second paragraph of Article 1020.05(a) of the Standard Specifications to read:

“For a mix design using a portland-pozzolan cement, portland blast-furnace slag cement, portland-limestone cement, or replacing portland cement with finely divided minerals per Articles 1020.05(c) and 1020.05(d), the Contractor may submit a mix design with a minimum portland cement content less than 400 lbs/cu yd (237 kg/cu m), but not less than 375 lbs/cu yd (222 kg/cu m), if the mix design is shown to have a minimum relative dynamic modulus of elasticity of 80 percent determined according to AASHTO T 161. Testing shall be performed by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete.”

Revise the first sentence of the first paragraph of Article 1020.05(b) of the Standard Specifications to read:

“Corrosion inhibitors and concrete admixtures shall be according to the qualified product lists.”

Delete the fourth and fifth sentences of the second paragraph of Article 1020.05(b) of the Standard Specifications.

Revise the third sentence of the second paragraph of Article 1020.05(b)(5) of the Standard Specifications to read:

“The qualified product lists of concrete admixtures shall not apply.”

Revise second paragraph of Article 1020.05(b)(10) of the Standard Specifications to read:

“When calcium nitrite is used, it shall be added at the rate of 4 gal/cu yd (20 L/cu m) and shall be added to the mix immediately after all compatible admixtures have been introduced to the batch. Other corrosion inhibitors shall be added per the manufacturer’s specifications.”

Delete the third paragraph of Article 1020.05(b)(10) of the Standard Specifications.

Revise Article 1020.15(b)(1)c. of the Standard Specifications to read:

“c. The minimum portland cement content in the mixture shall be 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone addition exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). For a drilled shaft, foundation, footing, or substructure, the minimum portland cement may be reduced to as low as 330 lbs/cu yd (196 kg/cu m) if the concrete has adequate freeze/thaw durability. The Contractor shall provide freeze/thaw test results according to AASHTO T 161, and the relative dynamic modulus of elasticity of the mix design shall be a minimum of 80 percent. Testing shall be performed by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete. Freeze/thaw testing will not be required for concrete that will not be exposed to freezing and thawing conditions as determined by the Engineer.”

Revise Article 1021.01 of the Standard Specifications to read:

“**1021.01 General.** Admixtures shall be furnished in liquid or powder form ready for use. The admixtures shall be delivered in the manufacturer's original containers, bulk tank trucks or such containers or tanks as are acceptable to the Engineer. Delivery shall be accompanied by a ticket which clearly identifies the manufacturer, the date of manufacture, and trade name of the material. Containers shall be readily identifiable as to manufacturer, the date of manufacture, and trade name of the material they contain.

Concrete admixtures shall be on one of the Department's qualified product lists. Unless otherwise noted, admixtures shall have successfully completed and remain current with the AASHTO Product Eval and Audit Concrete Admixture (CADD) testing program. For admixture submittals to the Department; the product brand name, manufacturer name, admixture type or types, an electronic link to the product's technical data sheet, and the NTPEP testing number which contains an electronic link to all test data shall be provided. In addition, a letter shall be submitted certifying that no changes have been made in the formulation of the material since the most current round of tests conducted by AASHTO Product Eval and Audit. After 28 days of testing by AASHTO Product Eval and Audit, air-entraining admixtures may be provisionally approved and used on Departmental projects. For all other admixtures, unless otherwise noted, the time period after which provisionally approved status may be earned is 6 months.

The manufacturer shall include the following in the submittal to the AASHTO Product Eval and Audit CADD testing program: the manufacturing range for specific gravity, the midpoint and manufacturing range for residue by oven drying, and manufacturing range of pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

For air-entraining admixtures according to Article 1021.02, the specific gravity allowable manufacturing range established by the manufacturer shall be according to AASHTO M 194. For residue by oven drying and pH, the allowable manufacturing range and test methods shall be according to AASHTO M 194.

For admixtures according to Articles 1021.03, 1021.04, 1021.05, 1021.06, 1021.07, and 1021.08, the pH allowable manufacturing range established by the manufacturer shall be according to ASTM E 70. For specific gravity and residue by oven drying, the allowable manufacturing range and test methods shall be according to AASHTO M 194.

All admixtures, except chloride-based accelerators, shall contain a maximum of 0.3 percent chloride by weight (mass) as determined by an appropriate test method. To verify the test result, the Department will use Illinois Modified AASHTO T 260, Procedure A, Method 1.

Prior to final approval of an admixture, the Engineer reserves the right to request a sample for testing. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). For freeze-thaw testing, the Department will perform the test according to Illinois Modified AASHTO T 161. The flexural strength test will be performed according to AASHTO T 177. If the Engineer decides to test the admixture, the manufacturer shall submit AASHTO T 197 water content and set time test results on the standard cement used by the Department. The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by AASHTO.

Random field samples may be taken by the Department to verify an admixture meets specification. A split sample will be provided to the manufacturer if requested. Admixtures that do not meet specification requirements or an allowable manufacturing range established by the manufacturer shall be replaced with new material."

Revise Article 1021.03 of the Standard Specifications to read:

“1021.03 Retarding and Water-Reducing Admixtures. The admixture shall be according to the following.

- (a) Retarding admixtures shall be according to AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).
- (b) Water-reducing admixtures shall be according to AASHTO M 194, Type A.
- (c) High range water-reducing admixtures shall be according to AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).”

Revise Article 1021.05 of the Standard Specifications to read:

“1021.05 Self-Consolidating Admixtures. Self-consolidating admixture systems shall consist of either a high range water-reducing admixture only or a high range water-reducing admixture combined with a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a concrete that can flow around reinforcement and consolidate under its own weight without additional effort and without segregation.

High range water-reducing admixtures shall be according to AASHTO M 194, Type F.

Viscosity modifying admixtures shall be according to AASHTO M 194, Type S (specific performance).”

Revise Article 1021.06 of the Standard Specifications to read:

“1021.06 Rheology-Controlling Admixture. Rheology-controlling admixtures shall be capable of producing a concrete mixture with a lower yield stress that will consolidate easier for slipform applications used by the Contractor. Rheology-controlling admixtures shall be according to AASHTO M 194, Type S (specific performance).”

Revise Article 1021.07 of the Standard Specifications to read:

“1021.07 Corrosion Inhibitor. The corrosion inhibitor shall be according to one of the following.

- (a) Calcium Nitrite. Corrosion inhibitors shall contain a minimum 30 percent calcium nitrite by weight (mass) of solution and shall comply with either the requirements of AASHTO M 194, Type C (accelerating) or the requirements of ASTM C 1582. The corrosion inhibiting performance requirements of ASTM C 1582 shall not apply.
- (b) Other Materials. The corrosion inhibitor shall be according to ASTM C 1582.

For submittals requiring testing according to ASTM M 194, Type C (accelerating), the admixture shall meet the requirements of the AASHTO Product Eval and Audit CADD testing program according to Article 1021.01.

For submittals requiring testing according to ASTM C 1582, a report prepared by an independent laboratory accredited by AASHTO re:source for portland cement concrete shall be provided. The report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications. However, ASTM G 109 test information specified in ASTM C 1582 is not required to be from an independent accredited lab. All other information in ASTM C 1582 shall be from an independent accredited lab. Test data and other information required to be submitted to AASHTO Product Eval and Audit according to Article 1021.01, shall instead be submitted directly to the Department.”

Add Article 1021.08 of the Standard Specifications as follows:

“1021.08 Other Specific Performance Admixtures. Other specific performance admixtures shall, at a minimum, be according to AASHTO M 194, Type S (specific performance). The Department also reserves the right to require other testing, as determined by the Engineer, to show evidence of specific performance characteristics.

Initial testing according to AASHTO M 194 may be conducted under the AASHTO Product Eval and Audit CADD testing program according to Article 1021.01, or by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete. In either case, test data and other information required to be submitted to AASHTO Product Eval and Audit according to Article 1021.01, shall also be submitted directly to the Department. The independent accredited lab report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications.”

Revise Article 1024.01 of the Standard Specifications to read:

“1024.01 Requirements for Grout. The grout shall be proportioned by dry volume, thoroughly mixed, and shall have a minimum temperature of 50 °F (10 °C). Water shall not exceed the minimum needed for placement and finishing.

Materials for the grout shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fine Aggregate	1003.02
(d) Fly Ash	1010
(e) Ground Granulated Blast Furnace (GGBF) Slag.....	1010
(f) Concrete Admixtures	1021”

Revise Note 1 of Article 1024.02 of the Standard Specifications to read:

“Note 1. Nonshrink grout shall be according to Illinois Modified ASTM C 1107.

The nonshrink grout shall have a water-soluble chloride ion content of less than 0.40 lb/cu yd (0.24 kg/cu m). The test shall be performed according to ASTM C 1218, and the grout shall have an age of 28 to 42 days at the time of test. The ASTM C 1218 test shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department. Mixing of the nonshrink grout shall be according to the manufacturer’s specifications. The Department will maintain a qualified product list.”

Revise Article 1029.02 of the Standard Specifications to read:

“ **1029.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Cement.....	1001
(b) Fly Ash	1010
(c) Ground Granulated Blast Furnace (GGBF) Slag	1010
(d) Water.....	1002
(e) Fine Aggregate.....	1003
(f) Concrete Admixtures	1021
(g) Foaming Agent (Note 1)	

Note 1. The manufacturer shall submit infrared spectrophotometer trace and test results indicating the foaming agent meets the requirements of ASTM C 869 in order to be on the Department's qualified product list. Submitted data/results shall not be more than five years old.”

Revise the second paragraph of Article 1103.03(a)(4) the Standard Specifications to read:

“The dispenser system shall provide a visual indication that the liquid admixture is actually entering the batch, such as via a transparent or translucent section of tubing or by independent check with an integrated secondary metering device. If approved by the Engineer, an alternate indicator may be used for admixtures dosed at rates of 25 oz/cwt (1630 mL/100 kg) or greater, such as accelerating admixtures, corrosion inhibitors, and viscosity modifying admixtures.”

Revise the first two sections of Check Sheet #11 of the Supplemental Specifications and Recurring Special Provisions to read:

“Description. This work shall consist of filling voids beneath rigid and composite pavements with cement grout.

Materials. Materials shall be according to the following Articles of Division 1000 - Materials of the Standard Specifications:

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fly Ash	1010
(d) Ground Granulated Blast Furnace (GGBF) Slag.....	1010
(e) Admixtures	1021
(f) Packaged Rapid Hardening Mortar or Concrete	1018”

Revise the third paragraph of Materials Note 2 of Check Sheet #28 of the Supplemental Specifications and Recurring Special Provisions to read:

“The Department will maintain a qualified product list of synthetic fibers, which will include the minimum required dosage rate. For the minimum required fiber dosage rate based on the Illinois Modified ASTM C 1609 test, a report prepared by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete shall be provided. The

report shall show results of tests conducted no more than five years prior to the time of submittal.”

COMPENSABLE DELAY COSTS (BDE)

Effective: June 2, 2017

Revised: April 1, 2019

Revise Article 107.40(b) of the Standard Specifications to read:

“(b) Compensation. Compensation will not be allowed for delays, inconveniences, or damages sustained by the Contractor from conflicts with facilities not meeting the above definition; or if a conflict with a utility in an unanticipated location does not cause a shutdown of the work or a documentable reduction in the rate of progress exceeding the limits set herein. The provisions of Article 104.03 notwithstanding, compensation for delays caused by a utility in an unanticipated location will be paid according to the provisions of this Article governing minor and major delays or reduced rate of production which are defined as follows.

- (1) Minor Delay. A minor delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two hours, but not to exceed two weeks.
- (2) Major Delay. A major delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two weeks.
- (3) Reduced Rate of Production Delay. A reduced rate of production delay occurs when the rate of production on the work in conflict with the utility in an unanticipated location decreases by more than 25 percent and lasts longer than seven calendar days.”

Revise Article 107.40(c) of the Standard Specifications to read:

“(c) Payment. Payment for Minor, Major, and Reduced Rate of Production Delays will be made as follows.

- (1) Minor Delay. Labor idled which cannot be used on other work will be paid for according to Article 109.04(b)(1) and (2) for the time between start of the delay and the minimum remaining hours in the work shift required by the prevailing practice in the area.

Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4).

- (2) Major Delay. Labor will be the same as for a minor delay.

Equipment will be the same as for a minor delay, except Contractor-owned equipment will be limited to two weeks plus the cost of move-out to either the Contractor's yard or another job and the cost to re-mobilize, whichever is less. Rental equipment may be paid for longer than two weeks provided the Contractor presents adequate support to the Department (including lease agreement) to show retaining equipment on the job is the most economical course to follow and in the public interest.

- (3) Reduced Rate of Production Delay. The Contractor will be compensated for the reduced productivity for labor and equipment time in excess of the 25 percent threshold for that portion of the delay in excess of seven calendar days. Determination of compensation will be in accordance with Article 104.02, except labor and material additives will not be permitted.

Payment for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be determined according to Article 109.13.”

Revise Article 108.04(b) of the Standard Specifications to read:

“(b) No working day will be charged under the following conditions.

- (1) When adverse weather prevents work on the controlling item.
- (2) When job conditions due to recent weather prevent work on the controlling item.
- (3) When conduct or lack of conduct by the Department or its consultants, representatives, officers, agents, or employees; delay by the Department in making the site available; or delay in furnishing any items required to be furnished to the Contractor by the Department prevents work on the controlling item.
- (4) When delays caused by utility or railroad adjustments prevent work on the controlling item.
- (5) When strikes, lock-outs, extraordinary delays in transportation, or inability to procure critical materials prevent work on the controlling item, as long as these delays are not due to any fault of the Contractor.
- (6) When any condition over which the Contractor has no control prevents work on the controlling item.”

Revise Article 109.09(f) of the Standard Specifications to read:

- “(f) Basis of Payment. After resolution of a claim in favor of the Contractor, any adjustment in time required for the work will be made according to Section 108. Any adjustment in the costs to be paid will be made for direct labor, direct materials, direct equipment, direct jobsite overhead, direct offsite overhead, and other direct costs allowed by the resolution. Adjustments in costs will not be made for interest charges, loss of anticipated profit, undocumented loss of efficiency, home office overhead and unabsorbed overhead other than as allowed by Article 109.13, lost opportunity, preparation of claim expenses and other consequential indirect costs regardless of method of calculation.

The above Basis of Payment is an essential element of the contract and the claim cost recovery of the Contractor shall be so limited.”

Add the following to Section 109 of the Standard Specifications.

“109.13 Payment for Contract Delay. Compensation for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be allowed when such costs result from a delay meeting the criteria in the following table.

Contract Type	Cause of Delay	Length of Delay
Working Days	Article 108.04(b)(3) or Article 108.04(b)(4)	No working days have been charged for two consecutive weeks.
Completion Date	Article 108.08(b)(1) or Article 108.08(b)(7)	The Contractor has been granted a minimum two week extension of contract time, according to Article 108.08.

Payment for each of the various costs will be according to the following.

- (a) Escalated Material and/or Labor Costs. When the delay causes work, which would have otherwise been completed, to be done after material and/or labor costs have increased, such increases will be paid. Payment for escalated material costs will be limited to the increased costs substantiated by documentation furnished by the Contractor. Payment for escalated labor costs will be limited to those items in Article 109.04(b)(1) and (2), except the 35 percent and 10 percent additives will not be permitted.
- (b) Extended Project Overhead. For the duration of the delay, payment for extended project overhead will be paid as follows.
 - (1) Direct Jobsite and Offsite Overhead. Payment for documented direct jobsite overhead and documented direct offsite overhead, including onsite supervisory and administrative personnel, will be allowed according to the following table.

Original Contract Amount	Supervisory and Administrative Personnel
Up to \$5,000,000	One Project Superintendent
Over \$ 5,000,000 - up to \$25,000,000	One Project Manager, One Project Superintendent or Engineer, and One Clerk
Over \$25,000,000 - up to \$50,000,000	One Project Manager, One Project Superintendent, One Engineer, and One Clerk
Over \$50,000,000	One Project Manager, Two Project Superintendents, One Engineer, and One Clerk

(2) Home Office and Unabsorbed Overhead. Payment for home office and unabsorbed overhead will be calculated as 8 percent of the total delay cost.

(c) Extended Traffic Control. Traffic control required for an extended period of time due to the delay will be paid for according to Article 109.04.

When an extended traffic control adjustment is paid under this provision, an adjusted unit price as provided for in Article 701.20(a) for increase or decrease in the value of work by more than ten percent will not be paid.

Upon payment for a contract delay under this provision, the Contractor shall assign subrogation rights to the Department for the Department's efforts of recovery from any other party for monies paid by the Department as a result of any claim under this provision. The Contractor shall fully cooperate with the Department in its efforts to recover from another party any money paid to the Contractor for delay damages under this provision."

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (DBE)

Effective: September 1, 2000

Revised: January 2, 2025

1. OVERVIEW AND GENERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory. Award of the contract is conditioned on meeting the requirements of 49 CFR Part 26, and failure by the Contractor to carry out the requirements of Part 26 is a material breach of the contract and may result in the termination of the contract or such other remedies as the Department deems appropriate.
2. CONTRACTOR ASSURANCE. All assurances set forth in FHWA 1273 are hereby incorporated by reference and will be physically attached to the final contract and all subcontracts.
3. CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. The Department has determined the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies and that, in the absence of unlawful discrimination and in an arena of fair and open competition, DBE companies can be expected to perform **0.00%** of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work in accordance with the requirements of 49 CFR 26.53 and SBE Memorandum No. 24-02.
4. IDENTIFICATION OF CERTIFIED DBE. Information about certified DBE Contractors can be found in the Illinois UCP Directory. Bidders can obtain additional information and assistance with identifying DBE-certified companies at the Department's website or by contacting the Department's Bureau of Small Business Enterprises at (217) 785-4611.

5. BIDDING PROCEDURES. Compliance with this Special Provision and SBE Policy Memorandum 24-02 is a material bidding requirement. The following shall be included with the bid.
- (a) DBE Utilization Plan (form SBE 2026) documenting enough DBE participation has been obtained to meet the goal, or a good faith effort has been made to meet the goal even though the efforts did not succeed in obtaining enough DBE participation to meet the goal.
 - (b) Applicable DBE Participation Statement (form SBE 2023, 2024, and/or 2025) for each DBE firm the bidder has committed to perform the work to achieve the contract goal.

The required forms and documentation shall be submitted as a single .pdf file using the "Integrated Contractor Exchange (iCX)" application within the Department's "EBids System".

The Department will not accept a bid if it does not meet the bidding procedures set forth herein and the bid will be declared non-responsive. A bidder declared non-responsive for failure to meet the bidding procedures will not give rise to an administrative reconsideration. 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.

6. UTILIZATION PLAN EVALUATION. The contract will not be awarded until the Utilization Plan is approved. All information submitted by the bidder must be complete, accurate, and adequately document the bidder has committed to DBE participation sufficient to meet the goal, or that the bidder has made good faith efforts to do so, in the event the bidder cannot meet the goal, in order for the Department to commit to the performance of the contract by the bidder.

The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the Department determines, based upon the documentation submitted, that the bidder has made a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A and the requirements of SBE 2026.

If the Department determines that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan of that determination in accordance with SBE Policy Memorandum 24-02.

7. CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work the bidder commits to have performed by the specified DBEs and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE firms. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific guidelines for counting goal credit are provided in 49 CFR Part 26.55. In evaluating Utilization Plans for award the Department will count goal credit as set forth in Part 26 and in accordance with SBE Policy Memorandum 24-02.

8. CONTRACT COMPLIANCE. The Contractor must utilize the specific DBEs listed to perform the work and supply the materials for which each DBE is listed in the Contractor's approved Utilization Plan, unless the Contractor obtains the Department's written consent to terminate the DBE or any portion of its work. The DBE Utilization Plan approved by SBE is a condition-of-award, and any deviation to that Utilization Plan, the work set forth therein to be performed by DBE firms, or the DBE firms specified to perform that work, must be approved, in writing, by the Department in accordance with federal regulatory requirements. Deviation from the DBE Utilization Plan condition-of-award without such written approval is a violation of the contract and may result in termination of the contract or such other remedy the Department deems appropriate. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan.
- (a) NOTICE OF DBE PERFORMANCE. The Contractor shall provide the Engineer with at least three days advance notice of when all DBE firms are expected to perform the work committed under the Contractor's Utilization Plan.
 - (b) SUBCONTRACT. If awarded the contract, the Contractor is required to enter into written subcontracts with all DBE firms indicated in the approved Utilization Plan and must provide copies of fully executed DBE subcontracts to the Department upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.
 - (c) PAYMENT TO DBE FIRMS. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goal has been paid to the DBE. The Contractor shall document and report all payments for work performed by DBE certified firms in accordance with Article 109.11 of the Standard Specifications. All records of payment for work performed by DBE certified firms shall be made available to the Department upon request.
 - (d) FINAL PAYMENT. After the performance of the final item of work or trucking, or delivery of material by a DBE and final payment to the DBE by the Contractor, but not later than 30 calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement (form SBE 2115) to the Engineer. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.
 - (g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

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.

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: January 1, 2024

Revised: April 1, 2024

Revise the first paragraph of Article 669.04 of the Standard Specifications to read:

“669.04 Regulated Substances Monitoring. Regulated substances monitoring includes environmental observation and field screening during regulated substances management activities. The excavated soil and groundwater within the work areas shall be managed as either uncontaminated soil, hazardous waste, special waste, or non-special waste.

As part of the regulated substances monitoring, the monitoring personnel shall perform and document the applicable duties listed on form BDE 2732 “Regulated Substances Monitoring Daily Record (RSMDR)”.

Revise the first two sentences of the nineteenth paragraph of Article 669.05 of the Standard Specifications to read:

“The Contractor shall coordinate waste disposal approvals with the disposal facility and provide the specific analytical testing requirements of that facility. The Contractor shall make all arrangements for collection, transportation, and analysis of landfill acceptance testing.”

Revise the last paragraph of Article 669.05 of the Standard Specifications to read:

“The Contractor shall select a permitted landfill facility or CCDD/USFO facility meeting the requirements of 35 Ill. Admin. Code Parts 810-814 or Part 1100, respectively. The Department will review and approve or reject the facility proposed by the Contractor based upon information provided in BDE 2730. The Contractor shall verify whether the selected facility is compliant with those applicable standards as mandated by their permit and whether the facility is presently, has previously been, or has never been, on the United States Environmental Protection Agency (U.S. EPA) National Priorities List or the Resource Conservation and Recovery Act (RCRA) List of Violating Facilities. The use of a Contractor selected facility shall in no manner delay the construction schedule or alter the Contractor's responsibilities as set forth.”

Revise the first paragraph of Article 669.07 of the Standard Specifications to read:

“**669.07 Temporary Staging.** Soil classified according to Articles 669.05(a)(2), (b)(1), or (c) may be temporarily staged at the Contractor's option. All other soil classified according to Articles 669.05(a)(1), (a)(3), (a)(4), (a)(5), (a)(6), or (b)(2) shall be managed and disposed of without temporary staging to the greatest extent practicable. If circumstances beyond the Contractor's control require temporary staging of these latter materials, the Contractor shall request approval from the Engineer in writing.

Topsoil for re-use as final cover which has been field screened and found not to exhibit PID readings over daily background readings as documented on the BDE 2732, visual staining or odors, and is classified according to Articles 669.05(a)(2), (a)(3), (a)(4), (b)(1), or (c) may be temporarily staged at the Contractor's option.”

Add the following paragraph after the sixth paragraph of Article 669.11 of the Standard Specifications.

“The sampling and testing of effluent water derived from dewatering discharges for priority pollutants volatile organic compounds (VOCs), priority pollutants semi-volatile organic compounds (SVOCs), or priority pollutants metals, will be paid for at the contract unit price per each for VOCS GROUNDWATER ANALYSIS using EPA Method 8260B, SVOCs GROUNDWATER ANALYSIS using EPA Method 8270C, or RCRA METALS GROUNDWATER ANALYSIS using EPA Methods 6010B and 7471A. This price shall include transporting the sample from the job site to the laboratory.”

Revise the first sentence of the eight paragraph of Article 669.11 of the Standard Specifications to read:

“Payment for temporary staging of soil classified according to Articles 669.05(a)(1), (a)(3), (a)(4), (a)(5), (a)(6), or (b)(2) to be managed and disposed of, if required and approved by the Engineer, will be paid according to Article 109.04.”

SHORT TERM AND TEMPORARY PAVEMENT MARKINGS (BDE)

Effective: April 1, 2024

Revised: April 2, 2024

Revise Article 701.02(d) of the Standard Specifications to read:

“(d) Pavement Marking Tapes (Note 3)1095.06”

Add the following Note to the end of Article 701.02 of the Standard Specifications:

“Note 3. White or yellow pavement marking tape that is to remain in place longer than 14 days shall be Type IV tape.”

Revise Article 703.02(c) of the Standard Specifications to read:

“(c) Pavement Marking Tapes (Note 1)1095.06”

Add the following Note to the end of Article 703.02 of the Standard Specifications:

“Note 1. White or yellow pavement marking tape that is to remain in place longer than 14 days shall be Type IV tape.”

Revise Article 1095.06 of the Standard Specifications to read:

“1095.06 Pavement Marking Tapes. Type I white or yellow marking tape shall consist of glass spheres embedded into a binder on a foil backing that is precoated with a pressure sensitive adhesive. The spheres shall be of uniform gradation and distributed evenly over the surface of the tape.

Type IV tape shall consist of white or yellow tape with wet reflective media incorporated to provide immediate and continuing retroreflection in wet and dry conditions. The wet retroreflective media shall be bonded to a durable polyurethane surface. The patterned surface shall have approximately 40 ± 10 percent of the surface area raised and presenting a near vertical face to traffic from any direction. The channels between the raised areas shall be substantially free of exposed reflective elements or particles.

Blackout tape shall consist of a matte black, non-reflective, patterned surface that is precoated with a pressure sensitive adhesive.

- (a) Color. The white and yellow markings shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotometer with 45 degrees circumferential/zero degree geometry, illuminant D65, and two degree observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm.

Color	Daylight Reflectance %Y
White	65 min.
Yellow *	36 - 59

*Shall match Aerospace Material Specification Standard 595 33538 (Orange Yellow) and the chromaticity limits as follows.

x	0.490	0.475	0.485	0.530
y	0.470	0.438	0.425	0.456

- (b) Retroreflectivity. The white and yellow markings shall be retroreflective. Reflective values measured in accordance with the photometric testing procedure of ASTM D 4061 shall not be less than those listed in the table below. The coefficient of retroreflected luminance, R_L , shall be expressed as average millicandelas/footcandle/sq ft (millicandelas/lux/sq m), measured on a 3.0 x 0.5 ft (900 mm x 150 mm) panel at 86 degree entrance angle.

Coefficient of Retroreflected Luminance, R_L , Dry					
Type I			Type IV		
Observation Angle	White	Yellow	Observation Angle	White	Yellow
0.2°	2700	2400	0.2°	1300	1200
0.5°	2250	2000	0.5°	1100	1000

Wet retroreflectance shall be measured for Type IV under wet conditions according to ASTM E 2177 and meet the following.

Wet Retroreflectance, Initial R_L	
Color	R_L 1.05/88.76
White	300
Yellow	200

- (c) Skid Resistance. The surface of Type IV and blackout markings shall provide a minimum skid resistance of 45 BPN when tested according to ASTM E 303.
- (d) Application. The pavement marking tape shall have a precoated pressure sensitive adhesive and shall require no activation procedures. Test pieces of the tape shall be applied according to the manufacturer's instructions and tested according to ASTM D 1000, Method A, except that a stiff, short bristle roller brush and heavy hand pressure will be substituted for the weighted rubber roller in applying the test pieces to the metal test panel. Material tested as directed above shall show a minimum adhesion value of 750 g/in. (30 g/mm) width at the temperatures specified in ASTM D 1000. The adhesive shall be resistant to oils, acids, solvents, and water, and shall not leave objectionable stains or residue after removal. The material shall be flexible and conformable to the texture of the pavement.
- (e) Durability. Type IV and blackout tape shall be capable of performing for the duration of a normal construction season and shall then be capable of being removed intact or in large sections at pavement temperatures above 40 °F (4 °C) either manually or with a roll-up device without the use of sandblasting, solvents, or grinding. The Contractor shall provide a manufacturer's certification that the material meets the requirements for being removed after the following minimum traffic exposure based on transverse test decks with rolling traffic.

- (1) Time in place - 400 days
- (2) ADT per lane - 9,000 (28 percent trucks)
- (3) Axle hits - 10,000,000 minimum

Samples of the material applied to standard specimen plates will be measured for thickness and tested for durability in accordance with ASTM D 4060, using a CS-17 wheel and 1000-gram load, and shall meet the following criteria showing no significant change in color after being tested for the number of cycles indicated.

Test	Type I	Type IV	Blackout
Minimum Initial Thickness, mils (mm)	20 (0.51)	65 (1.65) ^{1/} 20 (0.51) ^{2/}	65 (1.65) ^{1/} 20 (0.51) ^{2/}
Durability (cycles)	5,000	1,500	1,500

1/ Measured at the thickest point of the patterned surface.

2/ Measured at the thinnest point of the patterned surface.

The pavement marking tape, when applied according to the manufacturer's recommended procedures, shall be weather resistant and shall show no appreciable fading, lifting, or shrinkage during the useful life of the marking. The tape, as applied, shall be of good appearance, free of cracks, and edges shall be true, straight, and unbroken.

(f) Sampling and Inspection.

- (1) Sample. Prior to approval and use of Type IV pavement marking tape, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The independent laboratory test report shall state the lot tested, the manufacturer's name, and the date of manufacture.

After initial approval by the Department, samples and certification by the manufacturer shall be submitted for each subsequent batch of Type IV tape used. The manufacturer shall submit a certification stating that the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, the manufacturer's name, and the date of manufacture.

- (2) Inspection. The Contractor shall provide a manufacturer's certification to the Engineer stating the material meets all requirements of this specification. All material samples for acceptance tests shall be taken or witnessed by a representative of the Bureau of Materials and shall be submitted to the Engineer of Materials, 126 East Ash Street, Springfield, Illinois 62704-4766 at least 30 days in advance of the pavement marking operations."

SPEED DISPLAY TRAILER (BDE)

Effective: April 2, 2014

Revised: January 1, 2022

Revise the last paragraph of Article 701.11 of the Standard Specifications to read:

“When not being utilized to inform and direct traffic, sign trailers, speed display trailers, arrow boards, and portable changeable message boards shall be treated as nonoperating equipment.”

Add the following to Article 701.15 of the Standard Specifications:

“(m) Speed Display Trailer. A speed display trailer is used to enhance safety of the traveling public and workers in work zones by alerting drivers of their speed, thus deterring them from driving above the posted work zone speed limit.”

Add the following to Article 701.20 of the Standard Specifications:

“(k) When speed display trailers are shown on the Standard, this work will not be paid for separately but shall be considered as included in the cost of the Standard.

For all other speed display trailers, this work will be paid for at the contract unit price per calendar month or fraction thereof for each trailer as SPEED DISPLAY TRAILER.”

Add the following to Article 1106.02 of the Standard Specifications:

“(o) Speed Display Trailer. The speed display trailer shall consist of a LED speed indicator display with self-contained, one-direction radar mounted on an orange see-through trailer. The height of the display and radar shall be such that it will function and be visible when located behind concrete barrier.

The speed measurement shall be by radar and provide a minimum detection distance of 1000 ft (300 m). The radar shall have an accuracy of ± 1 mile per hour.

The speed indicator display shall face approaching traffic and shall have a sign legend of “YOUR SPEED” immediately above or below the speed display. The sign letters shall be between 5 and 8 in. (125 and 200 mm) in height. The digital speed display shall show two digits (00 to 99) in mph. The color of the changeable message legend shall be a yellow legend on a black background. The minimum height of the numerals shall be 18 in. (450 mm), and the nominal legibility distance shall be at least 750 ft (250 m).

The speed indicator display shall be equipped with a violation alert that flashes the displayed detected speed when the work zone posted speed limit is exceeded. The speed indicator shall have a maximum speed cutoff. On roadway facilities with a normal posted speed limit greater than or equal to 45 mph, the detected speeds of vehicles traveling more than 25 mph over the work zone speed limit shall not be displayed. On facilities with normal posted speed limit of less than 45 mph, the detected speeds of vehicles traveling more than 15 mph over the work zone speeds limit shall not be displayed. On any roadway facility if detected speeds are less than 25 mph, they shall not be displayed. The display shall include automatic dimming for nighttime operation.

The speed indicator measurement and display functions shall be equipped with the power supply capable of providing 24 hours of uninterrupted service.”

SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)

Effective: April 2, 2018

Add the following to Section 109 of the Standard Specifications.

“109.14 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.”

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: November 2, 2017

Revised: April 1, 2019

Replace the second paragraph of Article 109.12 of the Standard Specifications with the following:

“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 BC 260A submitted for the approval of the subcontractor’s work.

Value of Subcontract Reported on Form BC 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%”

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".

SUBMISSION OF PAYROLL RECORDS (BDE)

Effective: April 1, 2021

Revised: November 2, 2023

FEDERAL AID CONTRACTS. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

"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."

STATE CONTRACTS. Revise Item 3 of Section IV of Check Sheet #5 of the Recurring Special Provisions to read:

- "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 Illinois Prevailing Wage Portal in compliance with the State Prevailing Wage Act (820 ILCS 130). The portal can be found on the IDOL website at <https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/Prevailing-Wage-Portal.aspx>. 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."

SURVEYING SERVICES (BDE)

Effective: April 1, 2025

Delete the fourth paragraph of Article 667.04 of the Standard Specifications.

Delete Section 668 of the Standard Specifications.

VEHICLE AND EQUIPMENT WARNING LIGHTS (BDE)

Effective: November 1, 2021

Revised: November 1, 2022

Add the following paragraph after the first paragraph of Article 701.08 of the Standard Specifications:

"The Contractor shall equip all vehicles and equipment with high-intensity oscillating, rotating, or flashing, amber or amber-and-white, warning lights which are visible from all directions. In accordance with 625 ILCS 5/12-215, the lights may only be in operation while the vehicle or equipment is engaged in construction operations."

WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012

Revised: January 2, 2025

The following applies to all Disadvantaged Business Enterprise (DBE) trucks on the project, whether they are utilized for DBE goal credit or not.

The Contractor shall notify the Engineer at least three days prior to DBE trucking activity.

The Contractor shall submit a weekly report of DBE trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) to the Engineer on Department form "SBE 723" within ten business days following the reporting period. The reporting period shall be Sunday through Saturday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

WORK ZONE TRAFFIC CONTROL DEVICES (BDE)

Effective: March 2, 2020

Revised: January 1, 2025

Add the following to Article 701.03 of the Standard Specifications:

“(q) Temporary Sign Supports1106.02”

Revise the third paragraph of Article 701.14 of the Standard Specifications to read:

“For temporary sign supports, the Contractor shall provide a FHWA eligibility letter for each device used on the contract. The letter shall provide information for the set-up and use of the device as well as a detailed drawing of the device. The signs shall be supported within 20 degrees of vertical. Weights used to stabilize signs shall be attached to the sign support per the manufacturer’s specifications.”

Revise the first paragraph of Article 701.15 of the Standard Specifications to read:

“ **701.15 Traffic Control Devices.** For devices that must meet crashworthiness standards, the Contractor shall provide a manufacturer’s self-certification or a FHWA eligibility letter for each Category 1 device and a FHWA eligibility letter for each Category 2 and Category 3 device used on the contract. The self-certification or letter shall provide information for the set-up and use of the device as well as a detailed drawing of the device.”

Revise the first six paragraphs of Article 1106.02 of the Standard Specifications to read:

“ **1106.02 Devices.** Work zone traffic control devices and combinations of devices shall meet crashworthiness standards for their respective categories. The categories are as follows.

Category 1 includes small, lightweight, channelizing and delineating devices that have been in common use for many years and are known to be crashworthy by crash testing of similar devices or years of demonstrable safe performance. These include cones, tubular markers, plastic drums, and delineators, with no attachments (e.g. lights). Category 1 devices shall be MASH compliant.

Category 2 includes devices that are not expected to produce significant vehicular velocity change but may otherwise be hazardous. These include vertical panels with lights, barricades, temporary sign supports, and Category 1 devices with attachments (e.g. drums with lights). Category 2 devices shall be MASH compliant.

Category 3 includes devices that are expected to cause significant velocity changes or other potentially harmful reactions to impacting vehicles. These include crash cushions (impact attenuators), truck mounted attenuators, and other devices not meeting the definitions of Category 1 or 2. Category 3 devices manufactured after December 31, 2019 shall be MASH compliant. Category 3 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350, may be used on contracts let before December 31, 2029. Category 3 devices shall be crash tested for Test Level 3 or the test level specified.

Category 4 includes portable or trailer-mounted devices such as sign supports, speed feedback displays, arrow boards, changeable message signs, temporary traffic signals, and area lighting supports. It is preferable for Category 4 devices manufactured after December 31, 2019 to be MASH-16 compliant; however, there are currently no crash tested devices in this category, so it remains exempt from the NCHRP 350 or MASH compliance requirement.

For each type of device, when no more than one MASH compliant is available, an NCHRP 350 compliant device may be used, even if manufactured after December 31, 2019.”

Revise Articles 1106.02(g), 1106.02(k), and 1106.02(l) to read:

“(g) Truck Mounted/Trailer Mounted Attenuators. The attenuator shall be approved for use at Test Level 3. Test Level 2 may be used for normal posted speeds less than or equal to 45 mph.

(k) Temporary Water Filled Barrier. The water filled barrier shall be a lightweight plastic shell designed to accept water ballast and be on the Department’s qualified product list.

Shop drawings shall be furnished by the manufacturer and shall indicate the deflection of the barrier as determined by acceptance testing; the configuration of the barrier in that test; and the vehicle weight, velocity, and angle of impact of the deflection test. The Engineer shall be provided one copy of the shop drawings.

(l) Movable Traffic Barrier. The movable traffic barrier shall be on the Department’s qualified product list.

Shop drawings shall be furnished by the manufacturer and shall indicate the deflection of the barrier as determined by acceptance testing; the configuration of the barrier in that test; and the vehicle weight, velocity, and angle of impact of the deflection test. The Engineer shall be provided one copy of the shop drawings. The barrier shall be capable of being moved on and off the roadway on a daily basis.”

REVISIONS TO THE ILLINOIS PREVAILING WAGE RATES

The Prevailing rates of wages are included in the Contract proposals which are subject to Check Sheet #5 of the Supplemental Specifications and Recurring Special Provisions. The rates have been ascertained and certified by the Illinois Department of Labor for the locality in which the work is to be performed and for each craft or type of work or mechanic needed to execute the work of the Contract. As required by Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and Check Sheet #5 of the Contract, not less than the rates of wages ascertained by the Illinois Department of Labor and as revised during the performance of a Contract shall be paid to all laborers, workers and mechanics performing work under the Contract. Post the scale of wages in a prominent and easily accessible place at the site of work.

If the Illinois Department of Labor revises the prevailing rates of wages to be paid as listed in the specification of rates, the contractor shall post the revised rates of wages and shall pay not less than the revised rates of wages. Current wage rate information shall be obtained by visiting the Illinois Department of Labor web site at <http://www.state.il.us/agency/idol/> or by calling 312-793-2814. It is the responsibility of the contractor to review the rates applicable to the work of the contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the contractor by means of the Illinois Department of Labor web site satisfies the notification of revisions by the Department to the contractor pursuant to the Act, and the contractor agrees that no additional notice is required. The contractor shall notify each of its subcontractors of the revised rates of wages.