Illinois Department of Transportation

Local Public Agency Formal Contract Proposal

PROPOSAL SUBMITTED BY		
Contractor's Name		
Street		P.O. Box
City	State	Zip Code

STATE OF ILLINOIS

COUNTY OF LAKE

(Name of City, Village, Town or Road District)

FOR THE IMPROVEMENT OF

STREET NAME OR ROUTE NO. Various Lake County Highways

SECTION NO. 16-00999-23-TL

TYPES OF FUNDS ST

☒ SPECIFICATIONS (required) ☒ PLANS (required)

For Municipal Projects

Submitted/Approved/Passed

Not Applicable

☐ Mayor ☐ President of Board of Trustees ☐ Municipal Official

Date

Department of Transportation

☒ Released for bid based on limited review

Not Applicable

Regional Engineer

County Engineer on behalf of IDOT pursuant to Agreement of Understanding dated January 18, 2013

Date

For County and Road District Projects

Submitted/Approved

Not Applicable

Highway Commissioner

Date

Submitted/Approved

County Engineer/~~Superintendent of Highways~~

Date

Note: All proposal documents, including Proposal Guaranty Checks or Proposal Bid Bonds, should be stapled together to prevent loss when bids are processed.

NOTICE TO BIDDERS

County LAKE
Local Public Agency LCDOT
Section Number 16-00999-23-TL
Route Various County Highways

Sealed proposals for the improvement described below will be received at the office of The County Engineer of Lake County, 600 West Winchester Road, Libertyville, IL 60048 (Address) until 10:00 A.M. (Time) on June 21, 2016 (Date)

Sealed proposals will be opened and read publicly at the office of The County Engineer of Lake County 600 West Winchester Road, Libertyville, IL 60048 (Address) at 10:00 A.M. (Time) on June 21, 2016 (Date)

DESCRIPTION OF WORK

Name 2016 Traffic Signal Project Length: _____ feet (0.00 miles)

Location Various LCDOT maintained traffic signals.

Proposed Improvement The installation of EVP equipment at various existing traffic signal installations including wireing mounting hardware, LED confirmation beacons and controller cabinet wiring.

1. Plans and proposal forms will be available online at http://www.lakecountyil.gov/648/Bids---Roadwork or at the office of the Lake County Division of Transportation, 600 West Winchester Road, Libertyville, IL 60048 (Address)
2. ☒ Prequalification
   If checked, each bidder shall include a completed "Affidavit of Availability" (Form BC 57), in their proposal, showing all uncompleted contracts awarded to them and all low bids pending award for Federal, State, County, Municipal and private work.
3. The Awarding Authority reserves the right to waive technicalities and to reject any or all proposals as provided in BLRS Special Provision for Bidding Requirements and Conditions for Contract Proposals.
4. The following Forms shall be returned by the bidder to the Awarding Authority (not required if crossed out):
   a. BLR 12200: Local Public Agency Formal Contract Proposal (includes BLR 12200a Schedule of Prices)
   b. BC 57: Affidavit of Availability
   c. BC 261: Substance Abuse Prevention Program Certification
   d. BLR 12230: Proposal Bid Bond
   ~~e. BLR 12325: Apprenticeship or Training Program Certification~~
   ~~f. BLR 12326: Affidavit of Illinois Business Office~~
   g. LCDOT – CBID Printout
5. The quantities appearing in the bid schedule are approximate and are prepared for the comparison of bids. Payment to the Contractor will be made only for the actual quantities of work performed and accepted or materials furnished according to the contract. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased or omitted as hereinafter provided.
6. Submission of a bid shall be conclusive assurance and warranty the bidder has examined the plans and understands all requirements for the performance of work. The bidder will be responsible for all errors in the proposal resulting from failure or neglect to conduct an in depth examination. The Awarding Authority will, in no case be responsible for any costs, expenses, losses or changes in anticipated profits resulting from such failure or neglect of the bidder.
7. The bidder shall take no advantage of any error or omission in the proposal and advertised contract.
8. If a special envelope is supplied by the Awarding Authority, each proposal should be submitted in that envelope furnished by the Awarding Agency and the blank spaces on the envelope shall be filled in correctly to clearly indicate its contents. When an envelope other than the special one furnished by the Awarding Authority is used, it shall be marked to clearly indicate its contents. When sent by mail, the sealed proposal shall be addressed to the Awarding Authority at the address and in care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and at the place specified in the Notice to Bidders. Proposals received after the time specified will be returned to the bidder unopened.
9. Permission will be given to a bidder to withdraw a proposal if the bidder makes the request in writing or in person before the time for opening proposals.

PROPOSAL

County LAKE
Local Public Agency LCDOT
Section Number 16-00999-23-TL
Route Various County Highways

1. Proposal of _____

for the improvement of the above section by the construction of The installation of EVP equipment at various existing traffic signal installations, including wiring, mounting hardware, LED confirmation beacons, and controller cabinet wiring. Some equipment will be Contractor furnish and installand other equipment will be LCDOT furnish and Contractor install. The project includes Maintenance of Existing Traffic Signal Installations and Traffic Control and Protection.
a total distance of _____ feet, of which a distance of _____ feet, (0.00 miles) are to be improved.

2. The plans for the proposed work are those prepared by Lake County Division of Transportation and approved by the Department of Transportation* on May 27, 2016

   **** County Engineer on behalf of IDOT pursuant to Agreement of Understanding dated January 18, 2013.***

3. The specifications referred to herein are those prepared by the Department of Transportation and designated as "Standard Specifications for Road and Bridge Construction" and the "Supplemental Specifications and Recurring Special Provisions" thereto, adopted and in effect on the date of invitation for bids.
4. The undersigned agrees to accept, as part of the contract, the applicable Special Provisions indicated on the "Check Sheet for Recurring Special Provisions" contained in this proposal.
5. The undersigned agrees to complete the work within 25 working days or by XXXXXXXXXXXXXXXXX unless additional time is granted in accordance with the specifications.
6. A proposal guaranty in the proper amount, as specified in BLRS Special Provision for Bidding Requirements and Conditions for Contract Proposals, will be required. Bid Bonds will be allowed as a proposal guaranty. Accompanying this proposal is either a bid bond if allowed, on Department form BLR 12230 or a proposal guaranty check, complying with the specifications, made payable to:

   _____ Treasurer of LAKE COUNTY

   The amount of the check is the same as the amount of the BID BOND (_____).

7. In the event that one proposal guaranty check is intended to cover two or more proposals, the amount must be equal to the sum of the proposal guaranties, which would be required for each individual proposal. If the proposal guaranty check is placed in another proposal, it will be found in the proposal for: Section Number_____.
8. The successful bidder at the time of execution of the contract will be required to deposit a contract bond for the full amount of the award. When a contract bond is not required, the proposal guaranty check will be held in lieu thereof. If this proposal is accepted and the undersigned fails to execute a contract and contract bond as required, it is hereby agreed that the Bid Bond or check shall be forfeited to the Awarding Authority.
9. Each pay item should have a unit price and a total price. If no total price is shown or if there is a discrepancy between the product of the unit price multiplied by the quantity, the unit price shall govern. If a unit price is omitted, the total price will be divided by the quantity in order to establish a unit price.
10. A bid will be declared unacceptable if neither a unit price nor a total price is shown.
11. The undersigned submits herewith the schedule of prices on ~~BLR 12200a~~ the LCDOT CBID printout covering the work to be performed under this contract.
12. The undersigned further agrees that if awarded the contract for the sections contained in the combinations on ~~BLR 12200a~~ the LCDOT CBID printout, the work shall be in accordance with the requirements of each individual proposal for the multiple bid specified in the Schedule for Multiple Bids below.

Illinois Department of Transportation

SCHEDULE OF PRICES

County LAKE
Local Public Agency LCDOT
Section 16-00999-23-TL
Route Various County Highways

Schedule for Multiple Bids

Combination Letter	Sections Included in Combinations	Total

Schedule for Single Bid

(For complete information covering these items, see plans and specifications)

Bidder's Proposal for making Entire Improvements	

Item No.	Items	Unit	Quantity	Unit Price	Total

CONTRACTOR CERTIFICATIONS

County LAKE
Local Public Agency LCDOT
Section Number 16-00999-23-TL
Route Various County Highways

The certifications hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder.

1. **Debt Deliquency.** The bidder or contractor or subcontractor, respectively, certifies that it is not delinquent in the payment of any tax administered by the Department of Revenue unless the individual or other entity is contesting, in accordance with the procedures established by the appropriate revenue Act, its liability for the tax or the amount of tax. Making a false statement voids the contract and allows the Department to recover all amounts paid to the individual or entity under the contract in a civil action.

2. **Bid-Rigging or Bid Rotating.** The bidder or contractor or subcontractor, respectively, certifies that it is not barred from contracting with the Department by reason of a violation of either 720 ILCS 5/33E-3 or 720 ILCS 5/33E-4.

   A violation of Section 33E-3 would be represented by a conviction of the crime of bid-rigging which, in addition to Class 3 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be barred for 5 years from the date of conviction from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

   A violation of Section 33E-4 would be represented by a conviction of the crime of bid-rotating which, in addition to Class 2 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be permanently barred from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

3. **Bribery.** The bidder or contractor or subcontractor, respectively, certifies that it has not been convicted of bribery or attempting to bribe an officer or employee of the State of Illinois or any unit of local government, nor has the firm made an admission of guilt of such conduct which is a matter of record, nor has an official, agent, or employee of the firm committed bribery or attempted bribery on behalf of the firm and pursuant to the direction or authorization of a responsible official of the firm.

4. **Interim Suspension or Suspension.** The bidder or contractor or subcontractor, respectively, certifies that it is not currently under a suspension as defined in Subpart I of Title 44 Subtitle A Chapter III Part 6 of the Illinois Administrative Code. Furthermore, if suspended prior to completion of this work, the contract or contracts executed for the completion of this work may be cancelled.

County LAKE
Local Public Agency LCDOT
Section Number 16-00999-23-TL
Route Various County Highways

SIGNATURES

(If an individual)

Signature of Bidder _____

Business Address _____

(If a partnership)

Firm Name _____

Signed By _____

Business Address _____

Inset Names and Addressed of All Partners _____

(If a corporation)

Corporate Name _____

Signed By _____
President

Business Address _____

Insert Names of Officers
President _____
Secretary _____
Treasurer _____

Attest: _____
Secretary

Illinois Department of Transportation

Bureau of Construction
2300 South Dirksen Parkway/Room 322
Springfield, Illinois 62764

Affidavit of Availability

For the Letting of June 21, 2016

Instructions: Complete this form by either typing or using black ink. "Authorization to Bid" will not be issued unless both sides of this form are completed in detail. Use additional forms as needed to list all work.

Part I. Work Under Contract

List below all work you have under contract as either a prime contractor or a subcontractor. It is required to include all pending low bids not yet awarded or rejected. In a joint venture, list only that portion of the work which is the responsibility of your company. The uncompleted dollar value is to be based upon the most recent engineer's or owners estimate, and must include work subcontracted to others. If no work is contracted, show **NONE.**

	1	2	3	4	Awards Pending	
Contract Number						
Contract With						
Estimated Completion Date						
Total Contract Price						Accumulated Totals
Uncompleted Dollar Value if Firm is the Prime Contractor						
Uncompleted Dollar Value if Firm is the Subcontractor						
				Total Value of All Work		

Part II. Awards Pending and Uncompleted Work to be done with your own forces.

List below the uncompleted dollar value of work for each contract and awards pending to be completed with your own forces. All work subcontracted to others will be listed on the reverse of this form. In a joint venture, list only that portion of the work to be done by your company. If no work is contracted, show NONE.

						Accumulated Totals
Earthwork						
Portland Cement Concrete Paving						
HMA Plant Mix						
HMA Paving						
Clean & Seal Cracks/Joints						
Aggregate Bases & Surfaces						
Highway, R.R. and Waterway Structures						
Drainage						
Electrical						
Cover and Seal Coats						
Concrete Construction						
Landscaping						
Fencing						
Guardrail						
Painting						
Signing						
Cold Milling, Planning & Rotomilling						
Demolition						
Pavement Markings (Paint)						
Other Construction (List)						
Totals						

Disclosure of this information is **REQUIRED** to accomplish the statutory purpose as outlined in the “Illinois Procurement Code." Failure to comply will result in non-issuance of an "Authorization To Bid." This form has been approved by the State Forms Management Center.

Part III. Work Subcontracted to Others.

For each contract described in Part I, list all the work you have subcontracted to others.

	1	2	3	4	Awards Pending
Subcontractor					
Type of Work					
Subcontract Price					
Amount Uncompleted					
Subcontractor					
Type of Work					
Subcontract Price					
Amount Uncompleted					
Subcontractor					
Type of Work					
Subcontract Price					
Amount Uncompleted					
Subcontractor					
Type of Work					
Subcontract Price					
Amount Uncompleted					
Subcontractor					
Type of Work					
Subcontract Price					
Amount Uncompleted					
Total Uncompleted					

I, being duly sworn, do hereby declare that this affidavit is a true and correct statement relating to ALL uncompleted contracts of the undersigned for Federal, State, County, City and private work, including ALL subcontract work, ALL pending low bids not yet awarded or rejected and ALL estimated completion dates.

Subscribed and sworn to before me

this _____ day of _____ , _____ Type or Print Name _____

Officer or Director Title

_____ Signed _____

Notary Public

My commission expires _____

Company _____

(Notary Seal)

Address _____

_____

Illinois Department of Transportation

Substance Abuse Prevention Program Certification

Letting Date: June 21, 2016 Item No.: _____

Contract No.: _____

Route: Various County Highways

Section: 16-00999-23-TL

Job No.: _____

County: LAKE

The Substance Abuse Prevention on Public Works Act, Public Act 95-0635, prohibits the use of drugs and alcohol, as defined in the Act, by employees of the Contractor and by employees of all approved Subcontractors while performing work on a public works project. The Contractor/Subcontractor herewith certifies that it has a superseding collective bargaining agreement or makes the public filing of its written substance abuse prevention program for the prevention of substance abuse among its employees who are not covered by a collective bargaining agreement dealing with the subject as mandated by the Act.

A. The undersigned representative of the Contractor/Subcontractor certifies that the contracting entity has signed collective bargaining agreements that are in effect for all of its employees, and that deal with the subject matter of Public Act 95-0635.

_____
Contractor/Subcontractor

_____
Name of Authorized Representative (type or print)

_____
Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative Date

B. The undersigned representative of the Contractor/Subcontractor certifies that the contracting entity has in place for all of its employees not covered by a collective bargaining agreement that deals with the subject of the Act, the attached substance abuse prevention program that meets or exceeds the requirements of Public Act 95-0635.

_____
Contractor/Subcontractor

_____
Name of Authorized Representative (type or print)

_____
Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative Date

Illinois Department of Transportation

Local Agency Proposal Bid Bond

Route: Various County Highways
County: LAKE
Local Agency: LCDOT
Section: 16-00999-23-TL

RETURN WITH BID

PAPER BID BOND

WE _____ as PRINCIPAL,

and _____ as SURETY,

are held jointly, severally and firmly bound unto the above Local Agency (hereafter referred to as "LA") in the penal sum of 5% of the total bid price, or for the amount specified in the proposal documents in effect on the date of invitation for bids whichever is the lesser sum. We bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly pay to the LA this sum under the conditions of this instrument.

WHEREAS THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH that, the said PRINCIPAL is submitting a written proposal to the LA acting through its awarding authority for the construction of the work designated as the above section.

THEREFORE if the proposal is accepted and a contract awarded to the PRINCIPAL by the LA for the above designated section and the PRINCIPAL shall within fifteen (15) days after award enter into a formal contract, furnish surety guaranteeing the faithful performance of the work, and furnish evidence of the required insurance coverage, all as provided in the "Standard Specifications for Road and Bridge Construction" and applicable Supplemental Specifications, then this obligation shall become void; otherwise it shall remain in full force and effect.

IN THE EVENT the LA determines the PRINCIPAL has failed to enter into a formal contract in compliance with any requirements set forth in the preceding paragraph, then the LA acting through its awarding authority shall immediately be entitled to recover the full penal sum set out above, together with all court costs, all attorney fees, and any other expense of recovery.

IN TESTIMONY WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by their respective officers this _____ day of _____

Principal

_____ (Company Name) _____ (Company Name)

By: _____ (Signature and Title) By: _____ (Signature and Title)

(If PRINCIPLE is a joint venture of two or more contractors, the company names, and authorized signatures of each contractor must be affixed.)

Surety

_____ (Name of Surety) By: _____ (Signature of Attorney-in-Fact)

STATE OF ILLINOIS,
COUNTY OF _____

I. _____, a Notary Public in and for said county,
do hereby certify that _____
(Insert names of individuals signing on behalf of PRINCIPAL & SURETY)

who are each personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of PRINCIPAL and SURETY, appeared before me this day in person and acknowledged respectively, that they signed and delivered said instruments as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this _____ day of _____

My commission expires _____ _____ (Notary Public)

ELECTRONIC BID BOND

☐ **Electronic bid bond is allowed (box must be checked by LA if electronic bid bond is allowed)**

The Principal may submit an electronic bid bond, in lieu of completing the above section of the Proposal Bid Bond Form. By providing an electronic bid bond ID code and signing below, the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the LA under the conditions of the bid bond as shown above. (If PRINCIPAL is a joint venture of two or more contractors, an electronic bid bond ID code, company/Bidder name title and date must be affixed for each contractor in the venture.)

Electronic Bid Bond ID Code

_____ (Company/Bidder Name)

_____ (Signature and Title) _____ Date

CONTRACTOR

PLEASE REPLACE WITH YOUR COMPLETED LCDOT CBID PRINTOUT

SPECIAL PROVISION

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STATE OF ILLINOIS
SPECIAL PROVISIONS

The following Special Provisions supplement the specifications listed in the table below, which apply to and govern the proposed improvement designated as Lake County Section **16-00999-23-TL**, and in case of conflict with any part or parts of said specifications, the said Special Provisions shall take precedence and govern.

SPECIFICATION	ADOPTED/DATED
Standard Specifications for Road and Bridge Construction	April 1, 2016
Manual on Uniform Traffic Control Devices for Streets and Highways Illinois Supplement	2009 Edition June 2014 Revision
Supplemental Specifications and Recurring Special Provisions (indicated on the Check Sheet included herein)	April 1, 2016
Standard Specifications for Water and Sewer Construction in Illinois	7th Edition, 2014

This Project Does Include a Separate Set of Plans.

LOCATION OF IMPROVEMENT

Various Lake County Division of Transportation maintained traffic signals in Lake County, Illinois.

DESCRIPTION OF IMPROVEMENT

The installation of emergency vehicle preemption equipment at various existing traffic signal installations, including wiring, mounting hardware, LED confirmation beacons, and controller cabinet wiring. The Contractor shall furnish and install equipment at some locations, while others will be installation only of equipment furnished by LCDOT. The project includes Maintenance of Existing Traffic Signal Installations and Traffic Control and Protection.

DIVISION 100. GENERAL REQUIREMENTS AND COVENANTS

SECTION 102 ADVERTISEMENT, BIDDING, AWARD AND CONTRACT EXECUTION (LCDOT)

Effective: January 1, 2007
Revised: March 20, 2015

Award and execution of contract shall be in accordance with Section 102 of the "Standard Specifications" and the following:

Insurance certificates *shall be received within* ***five (5) days*** *after the contract has been mailed to the bidder. Contract performance and payment* ***bond*** *shall be received within* ***ten (10) days*** *after the contract has been mailed to the bidder. The contract shall be executed by the successful bidder and returned within fifteen (15) days after the contract has been mailed to the bidder.*

CONTRACTORS and SUBCONTRACTORS holding a ***5 – HMA Paving IDOT prequalification*** *shall be limited to paving on contracts with 1200 total tons or less. The 1200 ton limit does not include HMA sidewalk, driveways, medians, paved shoulder behind curb, and/or patching.*

In order to limit bid proposal math errors, all bids for this project **shall** be submitted using the CBID spreadsheet. The Contractor shall include in their bid proposal a hardcopy CBID printout. Proposals submitted without a hardcopy CBID printout will be rejected as nonresponsive and returned to the Contractor unread. Proposals submitted with a handwritten schedule of items will be rejected as nonresponsive and returned to the Contractor unread. A maximum of five pay items may have legible pen and ink entries/revisions to the unit and extended prices on the CBID printout to accommodate last minute supplier and subcontractor quotes. A legible pen and ink entry/revision to the project total bid will also be allowed.

To decrease LCDOT bid processing time, for projects with 25 or more pay items the Contractor shall include in their sealed bid envelope a CD with a copy of the completed CBID. The hardcopy CBID printout will serve as the bid submission, while the CD is only provided to aid in tabulating the bids. In the event that there is a difference between the hardcopy CBID printout and the electronic copy provided on the CD, the hardcopy CBID printout shall take precedence and be used to complete the bid tabulation.

If the Contractor is bidding on more than one project for which the CD copy of the CBID is required, the Contractor may include all the CBIDs on a single CD. The CD shall be clearly labeled with the Contractor's name and the project CBIDs included. The single CD shall be submitted in the sealed bid envelope of one of the projects the Contractor is bidding on.

Shared Services: Under the authority of 30 ILCS 525, the Governmental Joint Purchasing Act the unit prices included in the proposal may be offered to other governmental units according to the following:

The purchase of goods and services pursuant to the terms of this Contract shall also be offered for purchases to be made by other governmental units, as authorized by the Governmental Joint Purchasing Act, 30 ILCS 525/0.01, et seq. (the "Act"). All purchases and payments made under the Act shall be made directly by and between each governmental unit and the successful bidder. The bidder agrees that Lake County shall not be responsible in any way for purchase orders or payments made by the other governmental units. The bidder further agrees that all terms and conditions of this Contract shall continue in full force and effect as to the other governmental units during extended terms. The credit or liability of each governmental unit shall remain separate and distinct. Disputes between bidders and governmental units shall be resolved between the immediate parties.

The bidder and the other governmental units may negotiate such other and further terms and conditions to this Contract ("Other Terms") as individual projects may require. To be effective, Other Terms shall be reduced to writing and signed by a duly authorized representative of both the successful bidder and the other governmental unit.

The bidder shall provide the other governmental units with all required documentation set forth in the solicitation including but not limited to: performance and payment bonds, Certificates of Insurance naming the respective governmental unit as an additional insured and certified payrolls to the other governmental unit as required.

ARTICLE 105.03(e) ENVIRONMENTAL PERMITTING AGENCIES

Effective: December 22, 2014
Revised: February 26, 2016

Add the following paragraph to Article 105.03 of the "Standard Specifications"

(e) Permitting Agency Deduction: Any monetary payment required from a permitting agency related to improper erosion and sediment control may be passed along to the Contractor as a deduction from future pay estimates. Monetary payments will include fees and violations attributable to the Contractor's actions or inaction resulting in improper erosion and sediment control. The deduction will be applied to monies due or that might become due to the Contractor. Permitting agencies include the Lake County Stormwater Management Commission, the Illinois Environmental Protection Agency, the Army Corps of Engineers, and other regulatory agencies.

ARTICLE 105.09 SURVEY CONTROL POINTS (LCDOT)

Effective: January 1, 2007
Revised: June 6, 2014

The Contractor shall furnish the Engineer with the materials required to establish survey control points according to Article 105.09 of the "Standard Specifications" and the following:

Paint: *The Contractor shall furnish, at their expense, white, pink or purple pavement marking paint in aerosol cans, for use by the Engineer. The quality of the marking paint shall be as manufactured by Aervoe-Pacific Co. (distributed by Municipal Marking Distributors, Inc., Dundee, IL) or approved equal.*
The Contractor and subcontractors shall only use white, pink or purple colors for their own markings. At no time will the Contractor use any of the J.U.L.I.E. utility colors listed in Article 107.31 of the "Standard Specifications".

Hubs: *The Contractor shall furnish, at their expense, hubs for use by the Engineer according to the following:*

1. *Shall be 1 ⅜" x ⅞" x 18" (actual dimension).*
2. *Shall be furnished in securely banded (on each end) bundles of 25 pieces.*
3. *The material shall be kiln dried Douglas fir, oak or maple and surfaced on the 2 larger sides and without splits, pitch pockets, wane, knots or decayed wood.*
4. *The tapered end on each hub shall be pencil point tapered.*

Lath: *The Contractor shall furnish, at their expense, lath for use by the Engineer according to the following:*

1. *Shall be 1 ⅛" x ½" x 48" (actual dimension).*
2. *Shall be furnished in securely banded (on each end) bundles of 50 pieces.*
3. *The material shall be kiln dried Douglas fir, oak or maple and surfaced on the 2 larger sides and without splits, pitch pockets, wane, knots or decayed wood.*
4. *The tapered end may be saw-cut tapered or pencil tapered.*

ARTICLE 106.03 SAMPLES, TESTS, AND CITED SPECIFICATIONS (LCDOT)

Effective: October 1, 2012
Revised: May 19, 2014

Hot-Mix Asphalt and Concrete Placements:

The Contractor shall notify the Engineer of proposed Hot-Mix Asphalt (HMA) and/or concrete placements according to the following:

1. By 2 p.m., the Contractor shall notify the Engineer, in person or by phone, of HMA and/or concrete placements proposed for the next working day. Upon receiving the Engineer's approval, the Contractor may schedule the HMA and/or concrete for placement. Requests for HMA and/or concrete placements called in after 2 p.m., cannot be placed for payment and should not be scheduled by the Contractor.

2. The Contractor's notification shall provide the following:
   a. A firm start time.
   b. The plant source of material.
   c. The pay items included.
   d. The project name and location - be specific on large projects.
   e. The estimated quantity of HMA and/or concrete to be used.
   f. The duration of the work.

3. In the event that the Engineer cannot be reached, the Contractor can meet the notification requirement by calling the LCDOT Materials Lab at (847) 377-7493 and leaving the notification message prior to 2 p.m. LCDOT will call the Contractor back and give approval for the next day's work. The Contractor must receive approval prior to scheduling the work for payment.

4. Cancellations due to weather or other good, unforeseen reasons need to be relayed to the Engineer and the LCDOT Materials Lab at (847) 377-7493, ASAP! Repeated cancellations without sufficient notice and/or for no good reason, in the opinion of the Engineer, will lead to a deduction for any incurred County Material Consultant costs from future pay estimates.

Concrete Test Cylinders:

The Contractor shall not transport concrete cylinders until a minimum of 8 hours have elapsed after the final set. Concrete cylinders shall be transported prior to 48 hours for standard curing. The cylinders will be transported within the above time frame, regardless of what day of the week the cylinders were cast.

A sufficient quantity of cylinders shall be cast to provide for an additional break beyond the specified break requirements. Until QC & QA (LCDOT) have confirmed that proper strength has been obtained for the specified break, QC will retain at least two additional 6” x 12” cylinders or three 4” x 8” cylinders for average strength. In the event the cylinder breaks fail to reach the required strength, according to Article 1020 of the “Standard Specifications”, the two additional 6” x 12” cylinders or three 4” x 8” cylinders will be broken at a later date determined by LCDOT.

PROTECTION OF EXISTING DRAINAGE FACILITIES DURING CONSTRUCTION (LCDOT)

Effective: May 19, 2014

All existing drainage structures shall be kept free of debris resulting from construction operations. All work and material necessary to prevent accumulation of debris in the drainage structures will be considered as included in the unit bid prices of the inlet protection, inlet filters and other temporary erosion control measures. Any debris in the drainage structures resulting from construction operations shall be removed at the Contractor's own expense, and no extra compensation will be allowed.

Should reconstruction or adjustment of a drainage structure be required by the Engineer in the field, the necessary work and payment shall be done according to Section 602 and Article 104.02 respectively of the “Standard Specifications”.

During construction, if the Contractor’s forces encounter or otherwise becomes aware of any sewers, underdrains or field drains within the right-of-way other than those shown on the plans, they shall inform the Engineer. The Engineer shall direct the work necessary to maintain or replace the facilities in service, and to protect them from damage during construction if maintained. Existing facilities to be maintained that are damaged because of non-compliance with this provision shall be replaced at the Contractor's own expense. Should the Engineer direct the replacement of a facility, the necessary work and payment shall be done in accordance with Section 550, Section 601 and Article 104.02 respectively of the “Standard Specifications”.

ARTICLE 107.09 PUBLIC CONVENIENCE AND SAFETY (LCDOT)

Effective: January 1, 2007
Revised: March 20, 2015

The Contractor shall limit public inconveniences and safety conflicts according to Article 107.09 of the "Standard Specifications" and the following:

Keeping Roads Open to Traffic:

For this project the Contractor shall maintain traffic according to the Maintenance of Traffic Plan shown on the plans. The Contractor shall limit flagging operations affecting the open lanes i.e. flagging for vehicles entering or leaving the construction site etc…, to the following times:

Monday - Friday	*9:00 am*	*to*	*3:00 pm*
Saturday	*9:00 am*	*to*	*3:00 pm*

At all other times, including periods of no construction activity, the Contractor shall maintain the available traffic lanes.

If local and/or area conditions warrant the above times may be adjusted (i.e. lengthened or shortened) by the Engineer. To request a change the Contractor shall submit to the Engineer a plan including the revised start and end time a minimum of 48 hours prior to the proposed revision. The Engineer will notify the Contractor 24 hours in advance with an approval or disapproval.

If the Contractor fails to provide a plan and/or the Contractor disregards the decision by of the Engineer the Traffic Control Deficiency Charge will be applied as stated in the Special Provisions for Traffic Control and Protection.

Safety and Convenience: *The Contractor shall maintain entrances along the proposed improvement. Interference with traffic movements and inconvenience to owners of abutting property and the public shall be kept to a minimum. Any delays or inconveniences caused by the Contractor, by complying with these requirements shall be considered as included in the unit bid prices of the contract and no additional compensation will be allowed.*

Contractors shall plan their work so that there will be no open holes in the pavement and that all barricades will be removed from the roadway during non-working hours, except where required for public safety.

Steel road plates may be used as temporary cover over excavations. Anytime steel road plates are in the roadway these requirements apply:

- *The steel road plate shall sit flat on the pavement and be free of defects and warping*
- *It shall be shimmed with a non-asphaltic material to prevent vertical movement*

- *If the steel road plate is not under constant surveillance, it shall be pinned to prevent horizontal movement by a minimum of 6 pins; 4 pins predrilled into the corners of the plates and 1 pin predrilled into each side parallel to the trench. Pins shall be drilled 3 inches into the pavement and not protrude above the pavement surface*
- *The steel road plate shall be at least 1 inch thick and large enough to allow a minimum of 1 foot of bearing on each side of the trench*
- *A one foot wide HMA surface course ramp shall be placed around the perimeter of the plate*
- *Multiple steel road plates shall be tack welded together to prevent separation if they are not under constant surveillance*
- *Appropriate advanced warning signs (W8-24 "STEEL PLATE AHEAD" and W8-1 "BUMP") are required*

Steel road plates may be left in place overnight, in emergency situations and with the concurrence of the Engineer. Steel road plates left in place overnight shall be attached to the roadway by a minimum of 6 pins; 4 pins predrilled into the corners of the plates and 1 pin predrilled into each side parallel to the trench. Pins shall be drilled 3 inches into the pavement and not protrude above the pavement surface.

Steel road plates left in-place for more than 72 hours, shall also be:

- *Recessed into the street surface the thickness of the steel road plate with no difference in elevation with the existing surface*
- *Secured in-place to prevent horizontal movement with HMA surface course between the existing pavement vertical edge and the steel road plate*

Road plates shall not be used from November 15th to April 15th without approval from the Engineer.

ARTICLE 107.20 PROTECTION AND RESTORATION OF PROPERTY (LCDOT)

Effective: January 1, 2007
Revised: May 19, 2014

The Contractor shall protect and restore property according to Article 107.20 of the "Standard Specifications" and the following:

Trees and Shrubs: *Extra care shall be exercised when operating equipment around trees or shrubs. Injured branches or roots shall be pruned in a manner satisfactory to the Engineer and shall be painted where the cut was made. Roots exposed during excavating operations shall be neatly pruned and covered with topsoil. This work shall be done as soon as possible and shall be considered as included in the unit bid price(s) of the various excavation (e.g. Earth Excavation, Excavating and Grading Existing Shoulder, Structure Excavation, Furnished Excavation etc...) and excavation related (e.g. Storm Sewers, Grading and Shaping Ditches, Concrete Foundations, etc...) work items shown in the Summary of Quantities. No additional compensation will be allowed this work.*

ARTICLE 107.23 PROTECTION OF STREAMS, LAKES, RESERVOIRS, NATURAL AREAS, WETLANDS, PRAIRIE AREAS, SAVANNAHS, AND ENDANGERED AND THREATENED SPECIES (LCDOT)

Effective: April 1, 2008
Revised: May 19, 2014

CONCRETE WASHOUT FACILITY

Description: The Contractor shall take sufficient precautions to prevent pollution of streams, lakes, reservoirs, and wetlands with fuels, oils, bitumens, calcium chloride, or other harmful materials according to Article 107.23 of the "Standard Specifications".

General: *To prevent pollution by residual concrete and/or the by product of washing out the concrete trucks, concrete washout facilities shall be constructed and maintained on any project which includes cast-in-place concrete items. The concrete washout shall be constructed, maintained, and removed according to this special provision and LCDOT standard LC4202 included in these plans. Concrete washout facilities shall be required on all projects regardless of the need for NPDES permitting. On projects requiring NPDES permitting, concrete washout facilities shall also be addressed in the Storm Water Pollution Prevention Plan.*

The concrete washout facility shall be constructed on the job site according to LC4202. The Contractor may elect to use a pre-fabricated portable concrete washout structure. The Contractor shall submit a plan for the concrete washout facility, to the Engineer for approval, a minimum of 10 calendar days before the first concrete pour. The working concrete washout facility shall be in place before any delivery of concrete to the site. The Contractor shall ensure that all concrete washout activities are limited to the designated area.

The concrete washout facility shall be located no closer than 50 feet from any environmentally sensitive areas, such as water bodies, wetlands, and/or other areas indicated on the plans. Adequate signage shall be placed at the washout facility and elsewhere as necessary to clearly indicate the location of the concrete washout facility to the operators of concrete trucks.

The concrete washout facility shall be adequately sized to fully contain the concrete washout needs of the project. The contents of the concrete washout facility shall not exceed 75% of the facility capacity. Once the 75% capacity is reached, concrete placement shall be discontinued until the facility is cleaned out. Hardened concrete shall be removed and properly disposed of outside the right-of-way. Slurry shall be allowed to evaporate, or shall be removed and properly disposed of outside the right-of-way. The Contractor shall immediately replace damaged basin liners or other washout facility components to prevent leakage of concrete waste from the washout facility. Concrete washout facilities shall be inspected by the Contractor after each use. Any and all spills shall be reported to the Engineer and cleaned up immediately. The Contractor shall remove the concrete washout facility when it is no longer needed.

Basis of Payment: This work will not be paid for separately, but shall be included in unit bid prices of the various concrete work items(e.g. portland cement concrete pavement; portland cement concrete sidewalk, and combination concrete curb and gutter etc…), shown in the Summary of Quantities.

ARTICLE 107.25 PROTECTION AND RESTORATION OF TRAFFIC SIGNS (LCDOT)

Effective: January 1, 2007
Revised: May 19, 2014

The Contractor shall protect and restore traffic signs within the limits of the project according to Article 107.25 of the "Standard Specifications" and the following:

1. *All signs removed shall be reinstalled 16 feet to 18 feet off the edge of pavement where possible. In curb sections this will vary and will be determined by the Lake County Division of Transportation.*

2. *All single sign installations shall be installed with the bottom of the sign 5 feet above edge of pavement in rural districts, and 7 feet above the edge of pavement in business, commercial or residential districts. On installations having two or more signs, the bottom of the lowest sign shall be 4 feet above edge of pavement.*

3. *All signs replaced will be erected using new "Telespar" system metal bases cut 42" long from 2¼" square material. They are to be driven into solid ground using a pneumatic driver. This work will not be paid for separately but shall be included in the lump sum cost of TRAFFIC CONTROL AND PROTECTION (SPECIAL).*

ARTICLE 107.27 INSURANCE (LCDOT)

Effective: January 1, 2007
Revised: May 19, 2014

The Contractor shall obtain and thereafter keep in force insurance according to Article 107.27 of the "Standard Specifications" and the following:

The minimum Employers Liability limits listed in paragraph 107.27(a)(2) shall be increased to the following limits:

(2) Employers Liability
   a. Each Accident $1,000,000
   b. Disease-policy limit $1,000,000
   c. Disease-each employee $1,000,000

The minimum Commercial General Liability limits listed in paragraph 107.27(b) shall be increased to the following limits along with the addition of a Personal and Advertising Injury Limit:

(1) General Aggregate Limit $4,000,000
(2) Products-Completed Operations Aggregate Limit $4,000,000
(3) Personal and Advertising Injury Limit $1,000,000
(4) Each Occurrence Limit $2,000,000

The minimum Commercial Automobile Liability limit listed in paragraph 107.27(c) shall remain at:

Bodily Injury & Property Damage
Liability Limit Each Occurrence $1,000,000

In addition to the Department, its officers, and employees, coverage shall be provided for Lake County, its agents, officers and employees, named as additional insured under ISO (Insurance Services Office) additional insured endorsement CG 20 26, edition date 07/04 or its equivalent. Coverage shall be provided for Lake County, its officers, agents and employees, all members of Boards, Commissions, Committees, Trustees and Organizations of the County, all volunteers and members of volunteer organizations and other non-paid personnel, including college and high school interns, while acting on behalf of the County. The Contractor's insurance shall be primary and non-contributory.

The contractual liability insurance coverage shall be broad enough to respond to the liability assumed by the Contractor in the following Hold Harmless Clause:

> Hold Harmless Clause
> *The Provider agrees to indemnify, save harmless and defend the County of Lake, its agents, servants, and employees and each of them against and hold it and them harmless from any and all lawsuits, claims, demands, liabilities, losses and expenses, including court costs and attorney's fees, for or on account of any injury to any person, or any death at any time resulting from such injury, or any damage to property, which may arise or which may be alleged to have arisen out of or in connection with the work covered by this contract. The foregoing indemnity shall apply except if such injury, death or damage is caused directly by the willful and wanton conduct of the County of Lake, its agents, servants, or employees or any other person indemnified hereunder.*

In the event the Contractor fails to obtain or maintain any insurance coverage required under this agreement, Lake County may purchase such insurance coverage and charge the expense thereof to the Contractor.

ARTICLE 107.29 OPENING OF SECTION OF HIGHWAY TO TRAFFIC (LCDOT)

Effective: January 1, 2007
Revised: May 19, 2014

Work under construction shall be opened to traffic according to Article 107.29 of the "Standard Specifications" and the following:

The Contractor shall work expeditiously to open traffic lanes closed due to roadwork. The Engineer shall be the sole judge of when a lane is ready to be opened to traffic. The opening of a lane to traffic shall be in accordance to Section 107.29 of the "Standard Specifications".

Roadwork requiring a closure of a lane, which has been opened previously to traffic, will be allowed at the discretion of the Engineer and under the following conditions:

1. *The lane closure shall only be in effect while workers are present in or near the closed lane.*
2. *The closed lane will be reopened to traffic at the end of the workday.*
3. *All traffic control devices pertaining to the lane closure shall be removed from the roadway at the end of the workday.*

SECTION 108 PROSECUTION AND PROGRESS (LCDOT)

Effective January 1, 2007
Revised: May 19, 2014

It is the intent of the County that this project be constructed in an orderly and timely manner. Toward this end, the Contractor shall take special note of the provisions of Article 105.06, Article 108.01 paragraph 2, and Article 108.02 of the "Standard Specifications" which shall be adhered to.

The Contractor shall coordinate all work between their forces and subcontractors to enable completion within the allotted working days.

ARTICLE 108.06 LABOR, METHODS, AND EQUIPMENT

Effective: May 29, 2015

The Contractor and each subcontractor shall meet the requirements of LRS12, Special Provision for Wages of Employees on Public Works except as follows:

The certified payroll(s) submitted by the Contractor and each subcontractor shall be submitted electronically in a PDF format. The accompanying statement signed by the Contractor or subcontractor may be scanned or contain an electronic signature. The documents shall be submitted via e-mailed to the Engineer.

IDOT DESIGN TEMPORARY PAY ITEMS

X0325801 LIGHT DETECTOR, (INSTALLATION ONLY)

Description: This work shall consist of installing emergency vehicle preemption system equipment furnished by the Lake County Division of Transportation (LCDOT) at the locations shown on the plans.

General: The installation and materials shall be according to the LCDOT special provision for EMERGENCY VEHICLE PRIORITY SYSTEM included in the LCDOT Traffic Signal Special Provisions.

The Contractor may reuse the existing mounting hardware and field wiring currently installed at the intersection. No additional compensation shall be made if the Contractor chooses to mount the light detector using new hardware.

The Contractor shall furnish and install new L.E.D. confirmation beacons in the existing housings.

Method of Measurement: The Light Detector, (Installation Only) will be measured per each installation. Furnishing and installing the L.E.D. confirmation beacon will not be measured separately.

Basis of Payment. This work shall be paid for at the contract unit price each for LIGHT DETECTOR, (INSTALLATION ONLY). *The unit price shall include all equipment, materials and labor required to install the Light Detector furnished by LCDOT. The cost of furnishing and installing mounting hardware and the confirmation beacon shall be included in the cost of LIGHT DETECTOR, (INSTALLATION ONLY).*

X0325802 LIGHT DETECTOR AMPLIFIER, (INSTALLATION ONLY)

Description: This work shall consist of installing emergency vehicle preemption system equipment furnished by the Lake County Division of Transportation (LCDOT) at the locations shown on the plans.

General: The installation and materials shall be according to the LCDOT special provision for EMERGENCY VEHICLE PRIORITY SYSTEM included in the LCDOT Traffic Signal Special Provisions.

The Contractor shall use existing detector racks and cabinet wiring.

The Contractor shall make any necessary modifications to the traffic signal controller and cabinet to provide proper operation according to the proposed pre-emption phase sequence as shown in the plans.

Method of Measurement: The Light Detector Amplifier, (Installation Only) will be measured per each installation.

Basis of Payment. This work shall be paid for at the contract unit price each for LIGHT DETECTOR AMPLIFIER, (INSTALLATION ONLY). *The unit price shall include all equipment, materials and labor required to install the Light Detector Amplifier furnished by LCDOT. Any required modifications to the traffic signal controller and cabinet shall be included in the cost of the LIGHT DETECTOR AMPLIFIER, (INSTALLATION ONLY).*

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<u>Traffic Control Plan</u> (L.C.-T- Section 700)
Effective 06/01/2012

Traffic Control shall be performed according to the applicable sections of the “Standard Specifications”, the “Supplemental Specifications”, the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways”, the “Quality Standard for Work Zone Traffic Control Devices”, any special details and Highway Standards as shown on the plans and the special provisions contained herein.

Special attention is called to Articles 105.03(b), 105.05, and 107.09, and to Sections 701, 704, and 782 of the “Standard Specifications”, and to the following Highway Standards, Details, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

The Contractor shall contact the Engineer at least 72 hours in advance of beginning work.

STANDARDS

701001-02	701006-05	701106-02	701201-04
701301-04	701421-07	701501-06	701601-09
701606-10	701701-10	701801-06	701901-05

DETAILS

LC7000	LC7003	LC7004
LC7005	LC7200	

RECURRING SPECIAL PROVISIONS

LRS3 Special Provision for Work Zone Traffic Control Surveillance

DETOURS

Detours and road closures on county maintained roads within Lake County, Illinois shall be according to the applicable Articles and Sections of the “Standard Specifications”, the “Supplemental Specifications”, the “Illinois Manual on Uniform Traffic Control Devices for Streets and Highways”, the Lake County Division of Transportation’s Detour Procedures and Guidelines, any special details and Highway Standards as shown on the Detour Plan and the Special Provisions contained herein. The LCDOT Detour Procedures and Guidelines are available from the LCDOT, Traffic Engineering Section upon request.

<u>Traffic Control and Protection (Special)</u> (L.C.-T- Section 700)
Effective 06/01/2012

The Traffic Control and Protection (Special) shall meet the requirements of Division 700. Work Zone Traffic Control and Protection, Signing, and Pavement Marking of the "Standard Specifications" except as follows:

Article 701.01 Description shall be replaced with the following:

> **701.01 Description**. This item of work shall consist of furnishing, installing, maintaining, replacing, relocating and removing all traffic control devices used for the purpose of regulating, warning or directing traffic during the construction or maintenance of this improvement.

Article 701.02 Materials shall be modified by adding the following paragraph:

> Traffic control devices include signs and their supports, signals, pavement markings, barricades and their approved weights, channeling devices, warning lights, arrow boards, flaggers, or any other device used for the purpose of regulating, detouring, warning or guiding traffic through or around the construction zone.

Article 701.04 General shall be modified by adding the following as the first paragraph:

> Traffic Control and Protection (Special) shall be provided as shown on the plans and applicable Highway Standards; as required in these special provisions and the applicable sections of the "Standard Specifications"; and/or as directed by the Engineer.

Article 701.04 General shall be modified by adding the following to the fourth paragraph:

> The Contractor shall dispatch men, materials, and equipment to correct any such deficiencies. The Contractor shall respond to any call from LCDOT concerning any request for improving or correcting traffic control devices and begin making the requested repairs within two hours from the time of notification.

Article 701.10 Surveillance shall be replaced with the following:

The Contractor is required to conduct routine inspections of the work site at a frequency that will allow for the timely replacement of any traffic control device that has become displaced, worn or damaged to the extent that it no longer conforms to the shape, dimensions, color and operational requirements of the MUTCD, the Traffic Control Standards, the IDOT Quality Standard For Work Zone Traffic Control Devices, or will no longer present a neat appearance to motorists. A sufficient quantity of replacement devices, based on vulnerability to damage, shall be readily available to meet this requirement.

The Contractor shall ensure that all the traffic control devices he/she installs are operational, functional and effective 24 hours a day, seven days a week, including holidays.

Article 701.13 Flaggers (a) shall be modified by revising the second paragraph of subparagraph (a) by adding the following:

The Engineer will determine when a side road or entrance shall be closed to traffic. The flagger shall be positioned as shown on the plans or as directed by the Engineer.

Article 701.14 Signs (a) Road Construction Ahead Signs shall be modified by changing the following in the paragraph:

"ROAD WORK AHEAD" signs shall be required in lieu of "ROAD CONSTRUCTION AHEAD" SIGNS

Article 701.14 Signs (b) Work Zone Speed Limit Signs shall be revised to read:

(b) Work Zone Speed Limit Signs. The Lake County Division of Transportation will specify whether a project meets the criteria for a Work Zone Speed Limit. When specified, the work zone speed limit signs shall be installed as shown on the LCDOT Work Zone Speed Limit Signing Diagram, LC7203, at a maximum of 20 feet lateral distance of the locations shown on the plans. Failure to install and maintain the required amount of signs at the proper sign spacing shall result in an immediate traffic control deficiency.

All permanent "SPEED LIMIT" signs located within the work zone shall be removed or covered. If the speed limit sign is to be covered, it shall be done in a manner that no part of the legend shall be visible in any lighting condition. This work shall be completed by the Contractor after the method of covering the speed limit signs has been approved by the Engineer.

The work zone speed limit signs and the end work zone speed limit signs in advance of and at the end of the lane closure(s) shall be used for the duration of the closure(s).

The work zone speed limit signs will be removed when roadway conditions return to normal or when the construction project is suspended for more than 30 days.

Article 701.14 Signs shall be modified by adding the following section (c),

(c) Temporary Construction Information Signs. When indicated in the traffic control plan or as directed by the Engineer the Contractor shall furnish, install, maintain, relocate, and remove for various stages of construction Temporary Construction Information Signs.

Temporary Construction Information Signs may include:

Driveway	White Legend on Green Background
Caution – New Lanes Open	Black Legend on Orange Background

The signs, as shown on Lake County Detail LC7201, shall be installed according to the traffic control plan and/or as directed by the Engineer.

Article 701.15 Traffic Control Devices (b) Type I, II and III Barricades shall be deleted and replaced with the following:

Type II barricades shall be used at all locations that call for Type I, or Type II barricades.

Type II barricades are used to channelize traffic; to delineate unattended obstacles, patches, excavations, drop-offs, and other hazards; and as check barricades

Any drop off greater than three inches, but less than six inches, located within eight feet of the pavement edge shall be protected by Type II barricades equipped with mono-directional steady burn lights. The barricades shall be placed at a spacing of 100 feet center to center. For any drop off within eight feet of the pavement edge that exceeds six inches, the Type II barricades equipped with mono-directional steady burn lights shall be placed at a spacing of 50 feet center to center. Barricades that must be placed in excavated areas shall have leg extensions installed so that the top of the barricade is in compliance with the height requirements of IDOT Standard 701901.

Check barricades shall be placed in work areas perpendicular to traffic every 1,000 feet, at one per lane and one per shoulder, to prevent motorists from using work areas as a traveled way. Two additional check barricades shall be placed in advance of each patch excavation or any other hazard in the work area. The first will be placed at the edge of the open traffic lane and the second centered on the closed lane. Check barricades shall be Type II and equipped with flashing amber light.

Type III barricades are used to close traffic lanes and to close roads.

Article 701.15 Traffic Control Devices (e) Direction Indicator Barricades shall be modified by adding the following paragraph.

The direction indicator barricades shall meet the requirements for Type II barricades as stated in this special provision. The top panel, which faces traffic, shall be as shown in IDOT Highway Standard 701901. The top panel, facing away from traffic shall have a 12 inch x 24 inch orange and white diagonal panel. The bottom panels shall be eight inches x 24 inches with orange and white diagonal sheeting, as shown in LCDOT's Special Detail LC7200.

Article 701.15 Traffic Control Devices (j) Portable Changeable Message Signs shall be modified by adding the following paragraphs:

The PCMS shall be compatible and fully functional with the LCDOT's Transportation Management Center PASSAGE PCMS Control Software. A list of approved PCMS's manufacturers and traffic control vendors is available upon request from the LCDOT. The PCMS shall be tested and approved by the LCDOT and can be sufficiently controlled by the LCDOT NTCIP compliant software. If the PCMS has not been tested or approved by either the Illinois State Toll Highway Authority or the LCDOT then the PCMS will need to be tested and certified by the Delcan Corporation at the Contractor's expense.

Lake County Division of Transportation (PASSAGE)
Software Developer:
Delcan
650 East Algonquin Road, Suite 101
Schaumburg, IL 60173

In case of a Traffic Incident Management (TIM) event or other County/State declared Emergency Management event, the use of the PCMS may be pre-empted from the Contractor's use by the Lake County Transportation Management Center for the duration of the incident. If the PCMS must be moved from the limits of the work site to an offsite location to better facilitate

the use of the PCMS during the incident, the Contractor will be compensated for the labor and equipment to move the PCMS to the designated location and back, according to Article 109.04 (b) of the "Standard Specifications". In order to facilitate the movement of the PCMS in a timely manner, the LCDOT may use County Forces to move the PCMS to the designated location and/or back, at no additional cost to the Contractor.

When the sign(s) are displaying messages, they shall be considered a traffic control device. At all other times when no message is displayed, they shall be considered equipment.

Basis of Payment. Changeable message signs will be paid for at the contract unit price per calendar month for each sign as CHANGEABLE MESSAGE SIGN, as stated in Article 701.20 of this special provision.

Article 701.17 Specific Construction Operations (c) Surface Courses and Pavement (1) Prime Coat shall be replaced by the following:

(1) Prime Coat. "FRESH OIL" signs (W21-2) shall be used when the prime coat is applied to pavement that is open to traffic. The signs shall remain in place until tracking of the prime ceases. These signs shall be erected a minimum of 500 feet preceding the start of the prime and on all side roads within the posted area. The signs on the side roads shall be posted a minimum of 200 feet from the mainline pavement. These signs are excluded from the time requirements of Article 701.04 of the "Standard Specifications" as modified by this special provision (above). Non-compliance with the provisions of this section, by the Contractor, shall result in an immediate traffic control deficiency deduction. All signs shall have an amber flashing light attached.

Article 701.17 Specific Procedures (c) Surface Courses and Pavement (2) Cold Milling shall be replaced by the following:

(2) Cold Milling. "ROUGH GROOVED SURFACE" signs (W8-I107) shall be used when the road has been cold milled and is open to traffic. The signs shall remain in place until the milled surface condition no longer exists. These signs shall be erected a minimum of 500 feet preceding the start of the milled pavement and on all side roads within the posted area. The signs on the side roads shall be posted a minimum of 200 feet from the mainline pavement. Non-compliance with the provisions of this section, by the Contractor, shall result in an immediate traffic control deficiency deduction. All signs shall have an amber flashing light attached.

Article 701.17 Specific Procedures (c) Surface Course and Pavement shall be modified by adding the following paragraph:

(6) Area Reflective Crack Control Treatment Fabric. "SLIPPERY WHEN WET" signs (W8-5) shall be used when crack control fabric is applied to pavement that is open to traffic. These signs shall remain in place until the binder course is laid. The signs shall be erected a minimum of 500 feet preceding the start of the crack control treatment and on all side roads within the posted area. The signs on the side roads shall be posted a minimum of 200 feet from the mainline pavement. These signs are excluded from the time requirements of Article 701.04 of the "Standard Specifications" as modified by this special provision (above). Non-compliance with the provisions of this section, by the Contractor, shall result in an immediate traffic control deficiency deduction. All signs shall have an amber flashing light attached.

Article 701.18 Highway Standards Application (b) Standard 701316 and 701321 (2) g. Detector Loops, shall be replaced with the following:

g. Detection. Microwave Vehicle Sensors shall be installed as directed by the Engineer. The LCDOT shall approve the proposed microwave vehicle sensor before the Contractor may furnish or install it. The Contractor shall install, wire and adjust the alignment of the sensor according to the manufacturer's recommendations and requirements. The Engineer shall approve the installation. An alternate method of detection may be used if it has been demonstrated and approved by the Department.

The microwave vehicle sensor shall meet the following requirements:

- Detection Range: Adjustable to 60 feet
- Detection Angle: Adjustable, horizontal and vertical
- Detection Pattern: 16 degree beam width minimum [at 50 feet the pattern shall be approximately 15.5 feet wide]
- Mounting: Heavy-duty bracket, predrilled and slotted for pole mounting
- LED Indicator Light: For detection verification

Article 701.18 Highway Standards Application (j) Urban Traffic Control, Standards 701501, 701502, 701601, 701602, 701606, 701701, and 701801 (1) General, shall be modified by adding the following paragraphs:

Whenever a lane is closed to traffic using IDOT standard 701601, 701606, or 701701, the pavement width transition sign (W4-2R or W4-2L) shall be used in lieu of the "WORKERS" sign (W21-1 or W21-1a)

Whenever any vehicle, equipment, workers or their activities infringe on the shoulder or within 15 feet of the traveled way, and the traveled way remains unobstructed, then the applicable Traffic Control Standard shall be 701006, 701011, 701101, or 701701. The "SHOULDER WORK AHEAD" sign (W21-5(0)-48) shall be used in lieu of the "WORKERS" sign (W21-1 or W-21-1a).

Article 701.18 Highway Standards Application shall be modified by adding the following section (l):

(l) IDOT standard 701331. When IDOT standard 701331 is specified on two-lane, two-way roadways, a “LANE SHIFT AHEAD” sign shall be added 500 feet in advance of W1-3 or W1-4 sign. The Road Work sign (W20-1) shall be extended to a total of 1500’ from the start of the lane shift.

Article 701.19 Method of Measurement shall be replaced completely with the following:

701.19 Method of Measurement.

These items of work will be measured on a lump sum basis for furnishing installing, maintaining, replacing, relocating and removing the traffic control devices required in the plans and these special provisions.

Article 701.20 Basis of Payment shall be replaced completely with the following:

701.20 Basis of Payment

This work will be paid for at the contract unit price per lump sum for TRAFFIC CONTROL AND PROTECTION (SPECIAL). The payment will be in full for all labor, materials, transportation, and incidentals necessary to furnish, install, maintain, replace, relocate and remove all traffic control devices indicated in the plans and specifications, except for the following items, which will be paid for separately.

1) Temporary Bridge Traffic Signals
2) Temporary Rumble Strips [where each is defined as 25 feet]

3) Temporary Raised Pavement Markers
4) Sand module impact attenuators
5) Portable Changeable Message Signs
6) Temporary Concrete Barrier
7) Temporary Pavement Marking-Letters and Symbols
8) Temporary Pavement Marking-Line at width specified

The salvage value of the materials removed shall be reflected in the bid price for this item.

Any delays or inconveniences incurred by the Contractor while complying with these requirements shall be considered as part of TRAFFIC CONTROL AND PROTECTION (SPECIAL) and no additional compensation will be allowed.

Any traffic control devices required by the Engineer to implement the Traffic Control Plan as shown in the plans and specifications of the contract shall be considered included in the pay item TRAFFIC CONTROL AND PROTECTION (SPECIAL).

If the Engineer requires additional work involving a substantial change of location and/or work which differs in design and/or work requiring a change in the type of construction, as stated in Article 104.02(d) of the “Standard Specifications”, the standards and/or the designs, other than those required in the plans, will be made available to the Contractor at least one week in advance of the change in traffic control. Payment for any additional traffic control required for the reasons listed above will be in accordance with Article 109.04 of the “Standard Specifications”.

Revisions in the phasing of construction or maintenance operations, requested by the Contractor, may require traffic control to be installed according to standards and/or designs other than those included in the plans. The Contractor shall submit revisions or modifications to the traffic control plan shown in the contract to the Engineer for approval. No additional payment will be made for a Contractor requested modification.

In the event the sum total of all work items for which traffic control and protection is required is increased or decreased by more than ten percent, the contract bid price for TRAFFIC CONTROL AND PROTECTION will be adjusted as follows:

Adjusted Contract Price = 0.25P + 0.75P [1±(X-0.1]

P = the contract price for TRAFFIC CONTROL AND PROTECTION (SPECIAL)

$$X = \frac{\text{Difference between original and final value of work for which traffic control and protection is required.}}{\text{Original value of work for which traffic control and protection is required.}}$$

The value of the work items used in calculating the increase and decrease will include only items that have been added to or deducted from the contract under Article 104.02 of the “Standard Specifications” and only items that require the use of TRAFFIC CONTROL AND PROTECTION (SPECIAL).

In the event LCDOT cancels or alters any portion of the contract that result in the elimination or incompletion of any portion of the work, payment for partially completed work will be made according to Article 104.02 of the “Standard Specifications”.

LAKE COUNTY DIVISION OF TRANSPORTATION

TRAFFIC SIGNAL SPECIAL PROVISIONS

Effective: January 1, 2013

All work and equipment performed and installed under this Contract shall be governed by and shall comply with:

SPECIFICATION	ADOPTED/DATED
The State of Illinois **"Standard Specifications for Road and Bridge Construction"** referred to as **"Standard Specifications"**	**Latest Edition**
The State of Illinois **"Manual on Uniform Traffic Control Devices for Streets and Highways,"** referred to as **"MUTCD"**	**Latest Edition**
The National Electrical Code referred to as **"NEC"**	**Latest Edition**
The National Electrical Manufacturers Association **(All publications for traffic control items)** referred to as **"NEMA"**	**Latest Edition**
The International Municipal Signal Association **("Official Wire & Cable Specifications Manual,")** referred to as **"IMSA"**	**Latest Edition**
The Institute of Transportation Engineers **Technical Report No. 1,** **(A Standard for Adjustable Face Vehicular Traffic Control Heads)** referred to as **"ITE"**	**Latest Edition**
AASHTO "Standard Specifications" **Structural Supports for Highway Signs, Luminaires, and Traffic Signals**	**Latest Edition**
Supplemental Specifications and Recurring Special Provisions	**Latest Edition**

The following Traffic Signal Special Provisions supplement the above specifications, manuals, and codes. In case of conflict with any part or parts of said documents, these Special Provisions shall take precedence and shall govern.

The following terms and acronyms are used:

IDOT	Illinois Department of Transportation
District 1	IDOT District 1
LCDOT	The Lake County Division of Transportation
Engineer	The Resident Engineer
Traffic Engineer	The County Traffic Engineer – LCDOT

The intent of these Special Provisions is to prescribe the materials and construction methods commonly used in traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be indicated on the plans or as directed by the Engineer.

The work performed under this contract shall consist of furnishing and installing all traffic signal work as specified on the plans and as specified herein in a manner acceptable and approved by the Engineer.

SUBMITTALS.
Revise Article 801.05 of the Standard Specifications to read:

General requirements include:

a. All material approval requests shall be submitted at the preconstruction meeting.

b. Product data and shop drawings shall be assembled by pay item. Only the top sheet of each pay item submittal will be stamped by the LCDOT Traffic Department with the review status, except shop drawings for mast arm pole assemblies will be stamped with the review status on each sheet.

c. Four complete copies of the manufacturer's descriptive literatures and technical data for the traffic signal materials. If the literature contains more than one item, the Contractor shall indicate which item or items will be furnished.

d. Seven complete copies of the shop drawings for the mast arm assemblies and poles, and the combination mast arm assemblies and poles showing, in detail, the fabrication thereof and the certified mill analyses of the materials used in the fabrication, anchor rods, and reinforcing materials.

e. Partial or incomplete submittals will be returned without review.

f. Certain non-standard mast arm poles and structures will require additional review from IDOT's Bureau of Bridges and Structures. Examples include special mast arms and non-standard length mast arm pole assemblies. The contractor shall account for the additional review time in their schedule.

g. The contract number or permit number, project location/limits and corresponding pay code number must be on each sheet of correspondence, catalog cuts and mast arm poles and assemblies drawings.

h. Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections, and/or tests of material shall be complete with all test data, dates, and times.

i. After the Engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status as 'APPROVED', 'APPROVED AS CORRECTED', 'NOT APPROVED', or 'RESUBMIT'. Since the Engineer's review is for conformance with the design concept only, it is the Contractor's responsibility to coordinate the various items into a working system as specified. The Contractor shall not be relieved from responsibility for errors or omissions in the shop,

working, layout drawings, or other documents by the Engineer's approval thereof. The Contractor must still be in full compliance with contract and specification requirements.

j. All submitted items reviewed and marked 'APPROVED AS CORRECTED', 'NOT APPROVED', or 'RESUBMIT' are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments., with a disposition of previous comments to verify contract compliance at no additional cost to the contract.

k. Exceptions to and deviations from the requirements of the Contract Documents will not be allowed. It is the Contractor's responsibility to note any deviations from Contract requirements at the time of submittal and to make any requests for deviations in writing to the Engineer. In general, substitutions will not be acceptable. Requests for substitutions must demonstrate that the proposed substitution is superior to the material or equipment required by the Contract Documents. No exceptions, deviations or substitutions will be permitted without the approval of the Engineer.

MARKING PROPOSED LOCATIONS

Revise "Marking Proposed Locations for Highway Lighting System" of Article 801.09 to read "Marking Proposed Locations for Highway Lighting System and Traffic Signals."

INSPECTION OF ELECTRICAL SYSTEMS

Add the following to Article 801.10 of the "Standard Specifications":

All cabinets, including temporary traffic signal cabinets, shall be assembled by an approved equipment supplier in IDOT District 1. LCDOT reserves the right to request that any controller and cabinet be tested at an IDOT District 1 approved equipment supplier's facility prior to field installation. Such testing will be at no extra cost to the contract. All permanent or temporary "railroad interconnected" controllers and cabinets, shall be new, built, tested and approved by the controller equipment vendor, in the vendor's IDOT District 1 approved facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

MAINTENANCE AND RESPONSIBILITY

Revise Article 801.11 of the "Standard Specifications" to read:

a. Existing traffic signal installations and/or any electrical facilities at locations included in this contract may be altered or reconstructed totally or partially as part of the work on this contract. The Contractor is hereby advised that all traffic control equipment presently installed at these locations may be the property of the State of Illinois, Department of Transportation, Division of Highways, County, Private Developer, or the Municipality in which it is located. Once the Contractor has begun any work on any portion of the project, all traffic signals within the limits of this contract or those which have the pay item MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION, TEMPORARY TRAFFIC SIGNAL INSTALLATION, and/or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION, shall become the full responsibility of the Contractor. The Contractor shall supply the Engineer and the County's Traffic Signal Maintenance Contractor two 24-hour emergency contact names and telephone numbers. The Contractor shall provide sufficient qualified personnel to respond to all notifications of malfunctions on a round-the-clock basis (24 hours a day, 7 days a week). The Contractor is required to keep a time and date log of all maintenance items, including the time of the initial report, the response time, and the time of final permanent repair. The Contractor shall provide this information to the Engineer, upon request.

b. When the project has a pay item for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION, TEMPORARY TRAFFIC SIGNAL INSTALLATION, and/or MAINTENANCE OF EXISTING FLASHING BEACON INSTALLATION, the Contractor must notify the Traffic Engineer at **(847) 377-7000** of their intent to begin any physical construction work on the project or any portion thereof. This notification must be a minimum of seven (7) working days prior to the start of construction to allow sufficient time for an inspection of the existing traffic signal installation(s) and the transfer of maintenance to the Contractor. If work is started prior to the inspection, maintenance of the traffic signal installation(s) will be immediately transferred to the Contractor without an inspection. The Contractor shall then become responsible for repairing or replacing all equipment that is not operating properly or is damaged at no cost to the owner of the traffic signal. Final repairs to or the replacement of damaged equipment must meet the approval of the Engineer at the time of final inspection or the traffic signal installation will not be accepted.

c. Contracts that don't include traffic signal installations or modifications, but do include pay items for milling or pavement patching which may result in the destruction of traffic signal loops, do not require maintenance transfer. These contracts do require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the loop removal, the Contractor shall notify the Traffic Engineer at **(847) 377-7000**, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection.

d. The Contractor is advised that the existing and/or temporary traffic signal installation must remain in operation during all construction stages, except for the most unavoidable down time. Any plan to shutdown the traffic signal installation for a period exceeding fifteen (15) minutes must receive prior approval from the Engineer. Approval to shutdown the traffic signal installation will only be granted during the hours of 9:00 A.M. to 3:00 P.M. on weekdays. Shutdowns will not be allowed during inclement weather, weekends or holiday periods.

e. The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals. Any inquiry, complaint or request by the Division, the County's Traffic Signal Maintenance Contractor or the public, shall be investigated and repairs started. The Contractor shall restore service and complete permanent repairs in accordance with the following Repair Timetable. Failure to provide this service will result in liquidated damages of $500 per day per occurrence. The Traffic Engineer reserves the right to assign any work not completed within this timeframe to the County's Traffic Signal Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Traffic Signal Maintenance Contractor within one month after the incident will result in additional liquidated damages of $500 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The County's Traffic Signal Maintenance Contractor may inspect any signalizing device on the Division's highway system at any time without notification.

Immediately after performing any work related to a signal maintenance item (troubleshooting, temporary repair, permanent repair, etc.) the Contractor shall contact the Lake County PASSAGE Transportation Management Center (TMC) at **(847) 377-7000.**

Unless specifically stated to the contrary, all items shall be repaired within the time frame described in the Repair Timetable. The times listed are noncumulative. Any repairs not

specifically covered in the Repair Timetable, or described elsewhere, shall be completed within a time frame matching the most similar line item in the Repair Timetable.

REPAIR TIMETABLE
(non cumulative)

ITEM	RESPONSE TIME	SERVICE RESTORATION	PERMANENT REPAIRS
KNOCKDOWNS/FAILURE/DAMAGE:			
Cabinet	1 hr	24hrs	2 wks
Controller (Local or Master)	1 hr	24hrs	2 wks
Detector Loop	1 hr	n.a.	3 wks
Loop Detector/Amplifier	1 hr	4 hrs	2 wks
MVP Sensor	1 hr	4 hrs	2 wks
PTZ Camera	2 hrs	48 hrs	2 wks
Detector Interface Card/Mini Hub	1 hr	4 hrs	2 wks
Modem	2 hrs	NWD	2 wks
Load Switch	1 hr	2 hrs	2 hrs
Signal Head/Lenses	1 hr	2 hrs	NWD
Pole/Mast Arm	1 hr	2 hrs	ENG
Cabling/Conduit	1 hr	4 hrs	ENG
Interconnect/Communication	1 hr	NWD	ENG
Graffiti/Advertising	NWD	NWD	NWD
Telemetry, Electrical	1 hr	2 hrs	NWD
Ethernet Switches/Video Encoders	1 hr	48 hrs	2 wks
Highway Advisory Radio (HAR)	1 hr	48 hrs	2 wks
Indicators/switches/LEDs/displays	NWD	n.a.	2 wks
Outages not covered elsewhere	1 hr	2 hrs	NWD
Filter/Cleanliness/fans/thermostat	NWD	NWD	n.a.
Misalignment (conflicting)	1 hr	2 hrs	NWD
Misalignment (non-conflicting)	2 hrs	4 hrs	NWD
COMPLAINTS/CALLS/ALARMS:			
Timing/Phasing/Programming	1 hr	2 hrs	ENG
Coordination Alarm/Cycle Fail	NWD	ENG	ENG
Controller Alarm/Status Change	1 hr	NWD	1 wk
Detector Alarm/Status change	NWD	NWD	ENG
CMU Flash/Local Flash	1 hr	2 hrs	1 wk
Door Open/Maint. Req.	2 hrs	4 hrs	NWD

LEGEND: hr=hour, hrs=hours, NWD=next working day, wk=week, wks=weeks, ENG=acceptable to Engineer, days=calendar days, n.a.=not applicable

LIQUIDATED DAMAGES FOR UNTIMELY WORK

A primary concern of LCDOT is to maintain a safe and efficient roadway for the public. Therefore, the Contractor shall proceed with the traffic signal work as soon as conditions and project staging permit. If in the opinion of the Engineer construction conditions are suitable for traffic signal work, and the Contractor has not yet begun the traffic signal work, the Engineer shall notify the Contractor to proceed. The Contractor shall begin the traffic signal work within seven (7) calendar days after notification to proceed. The Contractor shall continue to

prosecute the traffic signal work until completion, or until he can no longer proceed due to conditions beyond his control. The Contractor shall notify the Engineer of any conditions impeding and/or delaying his prosecution of the work. Failure by the Contractor to proceed with the traffic signal work as specified herein shall result in liquidated damages of **$500.00** per calendar day per occurrence.

DAMAGE TO TRAFFIC SIGNAL SYSTEM

Revise Article 801.12(b) of the "Standard Specifications" to read:

Any damaged equipment or equipment not operating properly from any cause whatsoever shall be repaired and/or replaced with new equipment meeting current traffic signal specifications and provided by the Contractor at no additional cost to the Contract and/or owner of the traffic signal system, to the satisfaction of the Engineer. Final repairs or replacement of damaged equipment must meet the approval of the Engineer prior to or at the time of final inspection; otherwise the traffic signal installation will not be accepted. Cable splices outside the controller cabinet shall not be allowed.

Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, and peripheral equipment, damaged or not operating properly from any cause whatsoever, shall be the responsibility of the municipality or the Automatic Traffic Enforcement company per Permit agreement.

TRAFFIC SIGNAL INSPECTION (TURN-ON)

Revise Article 801.15(b) of the "Standard Specifications" to read:

It is LCDOT's intent to have all electric work completed and the equipment field-tested by the vendor, prior to LCDOT's "turn-on" field inspection. The Contractor must have all traffic signal work completed and the electrical service installation connected by the utility company prior to requesting an inspection and "turn-on" of the traffic signal installation. In the event the Traffic Engineer determines that the work is not complete and that the inspection will require more than two (2) hours to complete, the inspection shall be canceled and the Contractor will be required to reschedule at another date.

The Contractor may request a "turn-on" and inspection of the completed traffic signal installation at each separate location. This request must be made to the Traffic Engineer at **(847) 377-7000** a minimum of seven (7) working days prior to the time of the requested inspection. LCDOT will not grant a field inspection until the Contractor provides notification that the equipment has been field tested, and the intersection is operating according to contract requirements.

Signal indications being tested shall match the lane configurations and markings at the intersection. If any conflicting signal indications are visible to motorist or pedestrians while testing, Contractor shall be responsible to provide police officer(s) to direct traffic. In addition, the Contractor shall provide a representative from the control equipment vendor's office to attend the traffic signal inspection for both permanent and temporary traffic signal "turn-ons".
Upon demonstration that the signals are operating properly and that all work has been completed in accordance with the contract and to the satisfaction of the Traffic Engineer, the Traffic Engineer will then allow the signals to be placed in continuous operation. The Agency that is responsible for the maintenance of each traffic signal installation will reassume the traffic signal maintenance upon acceptance by the Traffic Engineer.

The Lake County Division of Transportation requires the following from the Contractor at Traffic Signal "turn-ons":

1. One (1) set of as-built signal plans.

2. One (1) letter from the electrical contractor certifying that all material and equipment provided and installed as part of the project is in accordance with the approved catalog cuts and shop drawings.

3. A knowledgeable representative of the controller equipment supplier shall be present at the traffic signal “turn-on”. The representative shall be knowledgeable concerning the cabinet design and the controller functions.

4. One (1) CD or electronic version of the cabinet box prints.

5. One (1) copy of the operation and service manuals for the signal controller and the associated control equipment.

6. Five (5) copies (11" x 17") of the cabinet wiring diagrams.

7. Five (5) copies of the traffic signal installation cable log.

8. All manufacturer and contractor warrantees and guarantees required by Article 801.14.

Acceptance of the traffic signal equipment by LCDOT shall be based on the inspection results at the traffic signal "turn-on". If approved, the traffic signal acceptance shall be given verbally at the "turn-on" inspection, followed by written correspondence from the Traffic Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until LCDOT acceptance is granted. Any "punch list" work remaining after the installation is accepted shall be completed within thirty (30) calendar days of the acceptance date. If this work is not completed within thirty days, LCDOT reserves the right to have the work completed by others at the Contractor’s expense. This cost will be in addition to Liquidated Damages for Untimely Work.

The Contractor shall furnish all equipment and/or parts to keep the traffic signal installation operating.

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid prices, under which the subject materials and signal equipment are paid, and no additional compensation will be allowed. Materials and signal equipment not complying with the above requirements will be subject to removal and disposal at the Contractor's expense.

LOCATING UNDERGROUND FACILITIES

Revise Section 803 of the “Standard Specifications” to read:

Contractor requests for equipment locates will be granted only once prior to the start of the contract. Additional requests shall be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any item(s) damaged during the construction, at his/her own expense.

Locate requests should be directed to LCDOT's Traffic Signal Maintenance Contractor or to the LCDOT Traffic Engineering Department at (847) 377-7000.

The exact location of all utilities shall be field verified by the Contractor before the installation of any components of the traffic signal system. For locations of utilities call J.U.L.I.E. at **1-800-892-0123**. For the locations of some utilities, other Agencies or Municipalities may need to be contacted.

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION

Revise Section 850 of the "Standard Specifications" to read:

The Contractor shall not be required to pay the energy charges for the operation of the existing traffic signal installation. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof.

The Contractor shall have electricians on staff with IMSA Level II certification to provide signal maintenance.

This item shall include maintenance of all traffic signal equipment at the intersection, including cameras, emergency vehicle pre-emption equipment, master controllers, telephone service installations, communication equipment, communication cables and conduits to adjacent intersections.

The maintenance shall be according to Article 850 of the "Standard Specifications", and the following contained herein.

The Contractor shall check all controllers every two (2) weeks, which will include visually inspecting all timing intervals, relays, detectors, and pre-emption equipment to ensure that they are functioning properly. This item includes, as routine maintenance, all portions of the emergency vehicle pre-emption system. The Contractor shall maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs.

The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two (2) far side heads facing each approach shall be considered the minimum acceptable signal operation pending permanent repairs. When repairs at a signalized intersection require that the controller be disconnected, and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer. The Contractor shall be required to place at least 1 STOP sign (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. At approaches where a yellow flashing indication is necessary, as directed by the Engineer, STOP signs will not be required. The Contractor shall furnish and equip all their signal maintenance vehicles with a sufficient number of STOP signs as specified herein. The Contractor shall maintain a sufficient number of spare STOP signs in stock at all times to replace those which may be damaged or stolen.

The Contractor shall provide the Engineer with a 24-hour telephone number for traffic signal maintenance. The Contractor, or his representative, shall be available on a 24-hour basis to respond to emergency calls by the Traffic Engineer or other parties.

Traffic signal equipment which is lost or not returned to the County for any reason shall be replaced with new equipment meeting the requirements of these Specifications.

The Contractor shall respond to all emergency calls from the County or others within one hour after notification and provide immediate corrective action. When equipment has been damaged or becomes faulty beyond repair, the Contractor shall replace it with new and identical equipment. The cost of furnishing and installing the replaced equipment shall be borne by the Contractor at no additional charge to the County. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the County's Traffic Signal Maintenance Contractor perform the maintenance work required. The County's Traffic Signal Maintenance Contractor shall bill the Contractor for the total cost of the work. The Contractor shall pay this bill within thirty (30) days of the date of receipt of the invoice or the cost of such work will be deducted from the amount due the Contractor. The Contractor shall allow the County's Traffic Signal Maintenance Contractor to make reviews of the existing traffic signal installation that has been transferred to the Contractor for maintenance.

The Engineer may require the Contractor to transfer maintenance of a signal back to the County's Traffic Signal Maintenance Contractor (or other electrical contractor) for a short time. This may become necessary due to other signal projects in the area, or if the County needs to perform work at the signal. Any costs incurred by the Contractor for maintenance transfer inspections of this type shall be included in cost of pay item MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

Any proposed activity in the vicinity of a highway-rail grade crossing must adhere to the guidelines set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) regarding work in temporary traffic control zones in the vicinity of highway-rail grade crossings which states that lane restrictions, flagging, or other operations shall not create conditions where vehicles can be queued across the railroad tracks. If the queuing of vehicles across the tracks cannot be avoided, a uniformed law enforcement officer or flagger shall be provided at the crossing to prevent vehicles from stopping on the tracks, even if automatic warning devices are in place.

Basis of Payment. This work shall be paid for at the contract unit price each for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

TEMPORARY TRAFFIC SIGNAL INSTALLATION

Add the following to Section 890 of the "Standard Specifications":

Only an approved equipment vendor will be allowed to assemble the temporary traffic signal cabinet. Also, an approved equipment vendor shall assemble and test a temporary railroad traffic signal cabinet. (Refer to the "Inspection of Electrical Systems" specification) A representative of the approved control equipment vendor shall be present at the temporary traffic signal turn-on inspection.

Only controllers compatible with "*Centracs"* software (NTCIP) or "Aries" software, currently in use by LCDOT, will be approved for use at temporary signal locations. Controller software compatibility requirements are based upon the controller's location in the communication system, and shall be as shown on the plans. All controllers used for temporary traffic signals shall be fully-actuated NEMA microprocessor based with RS232 data entry ports compatible

with existing monitoring software, installed in NEMA TS-1 or TS-2 cabinets with 8 phase back panels, capable of supplying 255 seconds of cycle length and individual phase length settings up to 99 seconds. On projects with one lane open and two way traffic flow, such as bridge deck repairs, the temporary bridge signal controller shall be capable of providing an adjustable all red clearance setting of up to 30 seconds in length. All controllers used for temporary traffic signals shall meet or exceed the requirements of Section 857 of the "Standard Specifications" with regards to internal time base coordination and preemption.

All temporary traffic signal cabinets shall have a closed bottom made of aluminum alloy. The bottom shall be sealed along the entire perimeter of the cabinet base to ensure a water, dust and insect-proof seal. The bottom shall provide a minimum of two (2) 4-inch diameter holes to run the electric cables through. The 4-inch diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

The stand which supports the temporary traffic signal cabinet shall be constructed of lumber and plywood that has been pressure-treated to protect against rot, mold, and insects.

Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 806 of the "Standard Specifications" and the "Grounding of Traffic Signal Systems" section of these special provisions.

All traffic signal head sections shall be twelve (12) inches. Traffic signal sections shall be LED with expandable view, unless otherwise approved by the Engineer. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Traffic Engineer. The Contractor shall furnish enough cable slack to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head.

All temporary traffic signal installations shall have vehicular detection installed as shown on the plans or as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as shown on the plans or as directed by the Engineer. All approaches shall have vehicular detection provided by vehicle detection system as shown on the plans or as directed by the Engineer. The Contractor shall install, wire, and adjust the alignment of the video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. A representative of the approved control equipment vendor shall be present and assist the contractor in setting up and maintaining the video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item Temporary Traffic Signal Installation. When called for in the plans, the UPS cabinet shall be mounted to the temporary traffic signal cabinet and meet the requirements of UNINTERRUPTABLE POWER SUPPLY of these Special Provisions.

For temporary traffic signal installations within closed loop system(s), the controller shall be compatible with the existing traffic signal system master controller. The existing system interconnect is to be maintained as part of the Temporary Traffic Signal Installation specified on the plan. The interconnect shall be installed into the temporary controller cabinet as per the notes or details on the plans. Refer to the INTERRUPTION OF COMMUNICATION

requirements described earlier. All labor and equipment required to install and maintain the existing interconnect shall be included in the cost of the item TEMPORARY TRAFFIC SIGNAL INSTALLATION.

All emergency vehicle priority equipment (light detectors, light detector amplifiers, confirmation beacons, etc.) as shown on the temporary traffic signal plans shall be provided by the Contractor. It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle priority equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of signal equipment currently in use by the County. All light operated systems shall operate at a uniform rate of 14.035 hz ±0.002, or as otherwise required by the Engineer. All labor and material required to install and maintain the Emergency Vehicle Priority system shall be included in the cost of the item TEMPORARY TRAFFIC SIGNAL INSTALLATION.

When directed by the Engineer, this item shall also include operational items such as: controller database changes, timing changes, activation/deactivation of phases, relocation of signal heads, relocation / reconfiguration of detectors (microwave and/or video), and bagging / unbagging signal heads. On temporary traffic signal installations with detector loops, coilable non-metallic conduit shall be used for detector loop raceways from the saw-cut to 10 feet up the wood pole, unless otherwise shown on the plans. Coilable non-metallic conduit shall meet the requirements of NEC Article 343 and meet the requirements of COILABLE NON-METALLIC CONDUIT of the Special Provisions.

All existing street name and intersection regulatory signs shall be removed from existing poles and relocated to the temporary signal span wire. If new mast arm assemblies and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost.

The Contractor shall not be required to pay the energy charges for the operation of the existing traffic signal installation. If the installation replaces an existing signal, the Contractor shall not be required to pay the energy charges for the operation of the temporary traffic signal. The Contractor shall pay the energy charges for all other temporary traffic signal installations.

The Contractor shall furnish all control equipment for the temporary traffic signals(s) unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be of the same manufacturer and model number with current software installed. Maintenance shall meet the requirements of the “Standard Specifications” and the "Maintenance of Existing Traffic Signal Installation" section of these special provisions. Maintenance of temporary signals and of the existing signals shall be included in the cost of this item. When temporary traffic signals are to be installed at locations where existing signals are presently operating, the Contractor shall be fully responsible for the maintenance of the existing signal installation as soon as he begins any physical work on any portion of the project. Maintenance responsibility of the existing signals shall be incidental to the item TEMPORARY TRAFFIC SIGNAL INSTALLATION. In addition, a minimum of seven (7) days prior to assuming maintenance of the existing traffic signal installation(s) under this contract, the Contractor shall contact the Traffic Engineer **(847) 377-7000** to request an inspection of the installation(s).

Temporary Traffic Signals for bridge projects shall follow the State Standards, “Standard Specifications”, LCDOT Traffic Signal Special Provisions, and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the above requirements for TEMPORARY TRAFFIC SIGNAL INSTALLATION. In addition, all electric cable shall be aerially

suspended, at a minimum height of 18 feet, on temporary wood poles (Class 5 or better) of 45 feet minimum height. The signal heads shall be span-wire-mounted or bracket-mounted to the wood pole or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole or as directed by the Engineer. All approaches for temporary traffic signals for bridge projects shall have microwave vehicle sensors or video vehicle detection, as shown on the plans or as approved by the Engineer.

Basis of Payment: This work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL INSTALLATION which shall include all costs for the installation, vehicular detection system, UPS, modification, maintenance, operational items, complete removal of the temporary traffic signal, and all material required to complete the work.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

Add the following to Article 895.05 of the "Standard Specifications":

The traffic signal equipment, which is to be removed and will become the property of the Contractor, shall be disposed of by the Contractor outside the right-of-way at his/her own expense.

The Contractor shall safely store and arrange for delivery of all equipment that will remain the property of LCDOT. The Contractor shall deliver, unload and stack the equipment at the owner's facility, as directed by the Engineer, within 30 days of removing it from the traffic signal installation. The Contractor shall provide three (3) copies of a list of equipment that is to remain the property of LCDOT including model and serial numbers where applicable. The Contractor shall also provide a copy of the contract plan or special provisions showing the quantities and type of equipment to be delivered. Controllers and peripheral equipment from the same location shall be boxed together (equipment from different locations may not be mixed) and all boxes and controller cabinets shall be clearly marked or labeled with the location from which they were removed. The Contractor shall be responsible for the condition of the traffic signal equipment from the time of removal until the acceptance of a receipt written by the owner indicating that the items have been returned in good condition.

Traffic signal equipment which is lost or not returned to the County for any reason shall be replaced with new equipment meeting the requirements of these Specifications.

RESTORATION OF WORK AREA

Add to Section 801 of the "Standard Specifications":

Restoration of the traffic signal work area shall be included in the related pay item such as foundation, conduit, handhole, trench and backfill, etc. and no extra compensation shall be allowed. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be restored to match the previously existing conditions. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded, in accordance with Section 250 and 252 of the "Standard Specifications" respectively.

CABINET NEATNESS

The Contractor shall assure that all wiring and peripheral equipment in any new traffic signal cabinet is in a neat and orderly fashion that is acceptable to the Engineer. This applies to controller cabinets, master cabinets, railroad cabinets, communication cabinets, electrical service cabinets, or any other new cabinet called for in the project plans.

All conduit entrances into the cabinet shall be sealed with a pliable waterproof material. Electrical cables inside the cabinet shall be neatly trained along the base and back of the cabinet. Each conductor shall be connected individually to the proper terminal, and the spare conductors shall be bound into a neat bundle. All cables, including those for signals, vehicle detection, pushbuttons, emergency vehicle preemption, video transmission, and communication shall be neatly arranged and bundled within the cabinet to the satisfaction of the Engineer. Each cable shall be marked with an identification number which corresponds to the number and description on the cabinet cable log.

In the case of an existing cabinet that is being modernized or modified, the new cables being installed shall be trained, bundled and labeled to the satisfaction of the Engineer. When working inside an existing cabinet, the Contractor shall minimize disturbance to existing cables and cabinet wiring. Any existing cables and cabinet wiring disturbed by the Contractor shall be re-trained, bundled, and/or labeled to the satisfaction of the Engineer.

The County shall not accept maintenance of the traffic signal installations until the requirements of this specification are satisfied.

VENDOR REPRESENTATION

Under this provision, the Engineer reserves the right to request the equipment vendor be present at the activation of new traffic equipment. Equipment covered under this provision includes signal heads, cabinets, controllers, amplifiers, preemption, video detection/monitoring, communication/transmission, fiber-optic/telemetry, radio, microwave, infrared, illuminated signs, streetlights, push buttons, lighted crosswalks, uninterruptable power supplies, and any other new equipment being installed and activated.

This provision is in addition to the requirement contained herein that the Contractor provide a representative from the control equipment vendor to attend the traffic signal inspection for both permanent and temporary traffic signal “turn-ons”.

Any costs associated with equipment vendor representation shall not be paid for separately, but shall be included in the cost of the associated traffic equipment being activated. Any unforeseen costs incurred by the Contractor to provide this representation shall not be the responsibility of the County.

INTERRUPTION OF COMMUNICATION

The interruption of communication with County equipment shall be kept to an absolute minimum. This includes communication such as controller telemetry, video transmission, camera control signals, Highway Advisory Radio, wireless interconnect, telephone (POTS/ISDN/DSL), high speed Internet, or any other County communication equipment. This provision applies to cable types including copper, multimode fiber optic, singlemode fiber optic, telephone cables, Internet cables, or any other cable used by the County to monitor and maintain its various signal and ITS equipment.

The contractor shall plan ahead, and shall stage his construction work accordingly, so that he can interrupt communication, and then restore communication, with as little down time as possible. For example, when a section of existing interconnect is being relocated, the new handholes and conduits should be installed prior to disconnecting the interconnect cable. The interconnect cable can then be disconnected, pulled out of the existing conduit, pulled through the new conduit, and re-connected. In addition, when an existing fiber optic cable is to be re-

used, the contractor shall be prepared to immediately replace any fiber splices and/or terminations that become damaged.

Prior to disconnecting any LCDOT communication link, the contractor shall contact the Traffic Engineer for approval of his planned construction method.

ELECTRIC SERVICE INSTALLATION

Revise Section 805 of the "Standard Specifications" to read:

Description. This work shall consist of all materials and labor required to install, modify, or extend the electric service installation. All installations shall meet the requirements of the details in the "IDOT District 1 Standard Traffic Signal Design Details" and applicable portions of the Specifications.

General. The electric service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

The electric utility contact information is noted on the plans and represents the current information at the time of contract preparation. The Contractor must request in writing for service and/or service modification within 10 days of contract award and must follow-up with the electric utility to assure all necessary documents and payment are received by the utility. The Contractor shall forward copies of all correspondence between the contractor and utility company to the Engineer of Traffic.

Materials.

a. General. The completed control panel shall be constructed in accordance with UL Std. 508, Industrial Control Panel, and carry the UL label. Wire terminations shall be UL listed.

b. Enclosures. All electrical service enclosures shall be UL 50, single door design, fabricated from Type 5052 H-32 aluminum or stainless steel. All seams shall be continuous welded and ground smooth, and the cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. Enclosures shall meet the following additional requirements:

1. Pole Mounted Cabinet. The cabinet shall be NEMA Type 4X. Stainless steel screws and clamps shall secure the cover and assure a watertight seal. The cover shall be removable by pulling the continuous stainless steel hinge pin. The cabinet shall have an oil-resistant gasket and a lock kit shall be provided with an internal O-ring in the locking mechanism assuring a watertight and dust-tight seal. A minimum size of 14-inches high, 9-inches wide and 8-inches deep is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the manufacturer.

2. Ground Mounted Cabinet. The cabinet shall be NEMA Type 3R with back panel. The cabinet frame and door shall be 0.125-inch thick, the top 0.250-inch thick, and the bottom 0.500-inch thick. The door and door opening shall be double flanged. The door shall be approximately 80% of the front surface, with a full-length tamperproof stainless steel .075-inch thick hinge bolted to the cabinet with stainless steel carriage bolts and nylock nuts. The locking

mechanism shall be slam-latch type with a keyhole cover. A minimum size of 40-inches high, 16-inches wide, and 15-inches deep is required. The cabinet shall be mounted upon a square Type A concrete foundation as indicated on the plans. The foundation is paid for separately.

c. Surge Protector. Overvoltage protection, with LED indicator, shall be provided for the 120-volt load circuit by the means MOV and thermal fusing technology. The response time shall be <5n seconds and operate within a range of –40C to +85C. The surge protector shall be UL 1449 Listed.

d. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type, with trip-free indicating handles. 120-volt circuit breakers shall have an interrupting rating of not less than 65,000 rms symmetrical amperes. Unless otherwise indicated, the main disconnect circuit breaker for the traffic signal controller shall be rated 60 amperes, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.

e. Fuses, Fuseholders and Power Indicating Light. Fuses shall be small-dimensional cylindrical fuses of the dual element time-delay type. The fuses shall be rated for 600 V AC and shall have a UL listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage. The power indicating light shall be LED type with a green colored lens and shall be energized when electric utility power is present.

f. Ground and Neutral Bus Bars. A single copper ground and neutral bus bar, mounted on the equipment panel shall be provided. Ground and neutral conductors shall be separated on the bus bar. Compression lugs, plus 2 spare lugs, shall be sized to accommodate the cables with the heads of the connector screws painted green for ground connections and white for neutral connections.

g. Utility Services Connection. The Contractor shall notify the Utility Company marketing representative a minimum of 30 working days prior to the anticipated date of hook-up. This 30-day advance notification will begin only after the Utility Company marketing representative has received service charge payments from the Contractor. Prior to contacting the Utility Company for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.

h. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10-feet in length, and ¾-inch in diameter. Ground rod resistance measurements to ground shall be 25 ohms or less. If necessary additional rods shall be installed to meet resistance requirements at no additional cost to the contract.

Installation

a. General. The Contractor shall confirm the orientation of the traffic service installation and its door side with the Engineer, prior to installation. All conduit entrances into the service installation shall be sealed with a pliable waterproof material.

b. Pole Mounted. Brackets designed for pole mounting shall be used. All mounting hardware shall be stainless steel. Mounting height shall be as noted on the plans or as directed by the Engineer.

c. Ground Mounted. The service installation shall be mounted plumb and level on the foundation and fastened to the anchor bolts with hot-dipped galvanized or stainless steel nuts and washers. The space between the bottom of the enclosure and the top of the foundation shall be caulked at the base with silicone.

The service installation shall be paid for at the contract unit price each for SERVICE INSTALLATION of the type specified which shall be payment in full for furnishing and installing the service installation complete. The type A foundation which includes the ground rod shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the ¾-inch grounding conduit, ground rod, and pole mount assembly. Any changes by the utility companies shall be approved by the Engineer and paid for as an addition to the contract according to Article 109.05 of the "Standard Specifications".

GROUNDING OF TRAFFIC SIGNAL SYSTEMS

Revise Section 806 of the "Standard Specifications" to read:

General. All traffic signal systems, equipment and appurtenances shall be properly grounded in strict conformance with the NEC. See "IDOT District One Standard Traffic Signal Design Details" for additional information.

The grounding electrode system shall include a ground rod installed in all foundations, and the service installation. An additional ground rod will be required at locations where measured resistance to ground exceeds 25 ohms. Ground rods are included in the associated pay items and will not be paid for separately. Testing shall be according to Article 801.13.

a) The grounded conductor (neutral conductor) shall be white color-coded. This conductor shall be bonded to the equipment-grounding conductor only at the Electric Service Installation. All power cables shall include one neutral conductor of the same size.

b) The equipment-grounding conductor shall be green color-coded. The following is in addition to Article 1087.01 of the "Standard Specifications".

   1) Equipment-grounding conductors shall be XLP insulated No. 6, unless otherwise noted on the plans, and bonded to the grounded conductor (neutral conductor) only at the electric service Installation. The Earth shall not be used as the equipment-grounding conductor, and no splices shall be allowed in the cable between ground rods. The equipment-grounding conductor is paid for separately.

   2) Equipment-grounding conductors shall be bonded, using a UL listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. A UL listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points.

   3) All metallic and non-metallic raceways containing traffic signal circuit runs shall have a continuous equipment-grounding conductor, with the following exceptions: Raceways containing only detector loop lead-in circuits, circuits under 50 volts and/or fiber optic cable will not be required to include an equipment-grounding conductor.

c) The grounding electrode conductor shall be similar to the equipment-grounding conductor in color coding (green) and size. The grounding electrode conductor is used to connect the

ground rod to the equipment-grounding conductor and is bonded to ground rods via exothermic welding, UL listed pressure connectors, UL listed clamps or other UL approved listed means.

GROUNDING EXISTING HANDHOLE FRAME AND COVER

This work shall consist of all materials and labor required to bond the equipment-grounding conductor to the existing handhole frame and handhole cover. All installations shall meet the requirements of the details in the "IDOT District One Standard Traffic Signal Design Details" and applicable portions of the Specifications.

The equipment-grounding conductor shall be bonded to the handhole frame and to the handhole cover. Two (2) ½-inch diameter x 1 ¼-inch long hex-head stainless steel bolts, spaced 1.75-inches apart center-to-center shall be fully welded to the frame and to the cover to accommodate a heavy duty Listed grounding compression terminal (Burndy type YGHA or approved equal). The grounding compression terminal shall be secured to the bolts with stainless steel split-lock washers and nylon-insert locknuts.

Welding preparation for the stainless steel bolt hex-head to the frame and to the cover shall include thoroughly cleaning the contact and weldment area of all rust, dirt and contaminates. The Contractor shall assure a solid strong weld. The welds shall be smooth and thoroughly cleaned of flux and spatter. The grounding installation shall not affect the proper seating of the cover when closed.

Mechanical connections to the frame and cover may be approved in lieu of the listed welding procedures. The contractor shall submit a detailed plan indicating the proposed connectors and installation procedures for review and approval by the Engineer prior to the start of any work on this item.

The grounding cable shall be paid for separately.

Basis of Payment: This work shall be paid for at the contract unit price each for GROUNDING EXISTING HANDHOLE FRAME AND COVER, which shall be payment in full for grounding one handhole complete, regardless of the type of handhole or its location.

UNDERGROUND CONDUIT

The conduit shall meet the requirements of Section 810 of the "Standard Specifications", except for the following:

Delete Article 810.01 of the "Standard Specifications" and add the following:

Description. This item shall consist of furnishing and installing galvanized steel conduit, fittings and accessories in the ground, either pushed, trenched, plowed, or directionally bored, with fittings complete as specified herein and as shown on the Contract drawings.

Add the following to Article 810.04 of the "Standard Specifications":

Pavement, driveways, and curbs shall not be removed to install electrical conduits. All buried conduits shall be placed at a minimum depth of 30 inches, except under railroad tracks, where the minimum depth shall meet the written requirements of the railroad company. All conduit couplings shall be threaded. Conduits terminating in junction and pull boxes shall be terminated with galvanized steel bushings.

When empty conduit is installed for future traffic signal interconnects(s), the Contractor shall provide a pull line within the conduit.

Revise Article 810.07 of the “Standard Specifications” to read:

Basis of Payment: This work will be paid for at the contract unit price per foot for UNDERGROUND CONDUIT of the type and size specified, which price shall be payment in full for furnishing and installing the conduit either pushed, trenched, plowed, or directionally bored with fittings, complete. Trenching, backfilling and area restoration are included in the cost of this item.

CONCRETE FOUNDATIONS

Add the following to Article 878.03 of the “Standard Specifications”:

All anchor bolts shall be according to Article 1006.09, except all anchor bolts shall be hot dipped galvanized the full length of the anchor bolt including the hook.

Concrete Foundations, Type A for Traffic Signal Posts shall provide anchor bolts with the bolt pattern specified within the "IDOT District 1 Standards Traffic Signal Design Details". All Type A foundations shall be a minimum depth of forty-eight (48) inches.

Concrete Foundations, Type C (Special) for Traffic Signal Cabinets with Uninterruptable Power Supply (UPS / Battery Back-Up) cabinet installations shall be constructed a minimum of forty-eight (48) inches long by thirty-one (31) inches wide, and shall have a minimum depth of forty-eight (48) inches. An integral concrete pad foundation for the UPS cabinet shall be constructed a minimum of thirty-one (31) inches long by twenty (20) inches wide by ten (10) inches deep. The UPS cabinet pad foundation shall be integral to the side of the signal cabinet foundation, and shall be constructed on the same side as the signal cabinet power panel. An L-Shaped concrete apron shall be constructed along the entire front of the signal cabinet foundation, the entire side of the UPS cabinet foundation, and the entire front of the UPS cabinet foundation. This concrete apron shall be a minimum of thirty-six (36) inches wide by four (4) inches deep. Anchor bolts shall be provided and spaced according to the cabinet manufacturer’s specifications.

Concrete Foundations, Type D for Traffic Signal Cabinets shall be constructed a minimum of forty-eight (48) inches long by thirty-one (31) inches wide, and shall have a minimum depth of forty-eight (48) inches. The concrete apron at the signal cabinet shall be constructed a minimum of thirty-six (36) inches wide by forty-eight (48) inches long by four (4) inches deep. Anchor bolts shall be provided and spaced according to the cabinet manufacturer’s specifications.

Concrete Foundations, Type E for Mast Arm and Combination Mast Arm Poles shall be 15 ft. minimum depth and in accordance with the latest edition of IDOT standard 878001.

The Resident Engineer shall approve the foundation excavation prior to placing any concrete.

HANDHOLES

Add the following to Section 814 of the “Standard Specifications”:

All handholes shall be cast-in-place concrete, with a minimum inside dimension of 21-1/2 inches. Frames and lid openings shall match this dimension. The minimum wall thickness for heavy-duty hand holes shall be 12 inches. The handhole cover shall be labeled “Traffic Signals" with legible raised letters.

All conduits shall enter the handhole at a minimum depth of thirty (30) inches. However, the depth of conduit from detector loops located less than five (5) feet from the handhole may be less than thirty (30) inches.

All cable hooks shall be hot-dipped galvanized in accordance with AASHTO Specification M111. Hooks shall be a minimum of 3/8-inch diameter and extend into the handhole at least 6 inches. Hooks shall be placed a minimum of 12 inches below the lid, or lower if additional space is required. All cable hooks shall be secured with a retaining nut tightened against the handhole concrete.

COILABLE NON-METALLIC CONDUIT

Description. This work shall consist of furnishing and installing empty coilable non-metallic conduit (CNC) for detector loop raceways.

General. The CNC installation shall be in accordance with Sections 810 and 811 of the Standard Specifications except for the following:

Add the following to Article 810.03 of the Standard Specifications:

CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes.

Add the following to Article 811.03 of the Standard Specifications:

On temporary traffic signal installations with detector loops, CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways from the saw-cut to 10 feet (3m) up the wood pole, unless otherwise shown on the plans

Basis of Payment. All installations of CNC shall be included in the cost of the contract and not paid for separately.

DETECTOR LOOP

Revise Section 886 of the “Standard Specifications” to read:

A minimum of seven (7) working days prior to the Contractor cutting loops, the Engineer shall mark the location of the proposed loops and contact the Traffic Engineer **(847) 377-7000** to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the placement of the concrete surface, using the same notification process as above.

Loop detectors shall be installed according to the requirements of the "IDOT District 1 Standard Traffic Signal Design Details". Saw-cuts (homeruns on preformed detector loops) from the loop to the edge of pavement shall be made perpendicular to the edge of pavement in order to minimize the length of the saw cut (homerun), unless otherwise directed by the Engineer or as shown on the plans. Polyethylene unit duct shall be used for detector loop raceways to the handholes. Coilable non-metallic conduit shall meet the requirements of NEC Article 343. All

coilable non-metallic conduit used for traffic signal loop detector runs shall be included in cost of the detector loop.

The detector loop cable insulation shall be labeled with the cable specifications. Each detector loop lead-in wire shall be labeled in the handhole using a Panduit 250W175C waterproof tag or approved equal. The tag will be secured to each wire with nylon ties.

The resistance to ground for new detector loops shall be a minimum of 500 megaohms under any conditions of weather or moisture. Inductance shall be more than 50 microhenries and less than 700 microhenries. Quality readings shall be more than 5. All new or replacement lead-in cables shall be connected to the loop interface panel using appropriate crimp-on, spade type connectors. Detector loop measurements shall include the saw cut and the length of the loop lead-in to the edge of pavement. The lead-in wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be included in the cost of the detector loop. Coilable non-metallic conduit, trench and backfill, and drilling of pavement or handholes shall be incidental to detector loop quantities.

The location of each dive hole shall be marked on the face of the curb, the edge of pavement or the handhole, with a saw cut 1/4 inch deep by 4 inches long.

(a) Type I: Each detector loop, which is to be installed in new asphalt pavement, must be placed in the pavement below the surface course. Each detector loop, which is to be installed in an existing asphalt or concrete pavement, shall be located to miss existing pavement cracks, if possible. Loop sealant used to seal new loops shall consist of a two-component thixotropic, chemically-cured polyurethane. The sealant will be Chemque Q-Seal 295, Perol Elastic Cement A/C Grade or an approved equal. The sealant shall be installed 1/8 inch below the pavement surface. Excess sealant, which accumulates on the surface, shall be removed immediately. Loop sealant used to reseal existing loops shall be composed of an asphalt-based compound. The sealant will be Doseal 230 or an approved equal.

(b) Preformed. This work shall consist of furnishing and installing a rubberized heat resistant preformed traffic signal loop in accordance with the “Standard Specifications”, except for the following:

Preformed detector loops shall be installed in new pavement constructed of portland cement concrete and shall be placed in the substrate. Loop lead-ins shall be protected to the satisfaction of the Engineer.

Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole.

Preformed detector loops shall be factory assembled. Homeruns and interconnects shall be pre-wired and shall be an integral part of the loop assembly. The loop configurations and homerun lengths shall be assembled for the specific application. The loop and homerun shall be constructed using 11/16-inch outside diameter (minimum), 3/8-inch inside diameter (minimum) Class A oil resistant synthetic cord-reinforced hydraulic hose with 250 psi internal pressure rating. Hose for the loop and homerun assembly shall be one continuous piece. No joints or splices shall be allowed in the hose except where necessary to connect homeruns or interconnects to the loops. This will provide maximum wire protection and loop system strength. Hose tee connections

shall be heavy-duty high temperature synthetic rubber. The tee shall be of proper size to attach directly to the hose, minimizing glue joints. The tee shall have the same flexible properties as the hose to insure that the whole assembly can conform to pavement movement and shifting without cracking or breaking. The wire used shall be #16 THWN stranded copper. The number of turns in the loop shall be application specific. Homerun wire pairs shall be twisted a minimum of four turns per foot. No wire splices will be allowed in the preformed loop assembly. The loop and homeruns shall be filled and sealed with a flexible sealant to insure complete moisture blockage and further protect the wire.

To minimize the length of time that a signal operates without vehicle detection, detector loops for active traffic signal installations shall be installed in a timely manner as follows:

If in the opinion of the Engineer construction conditions are suitable for loop installation(s), the Engineer shall notify the Contractor to proceed. The detector loops shall be installed and fully operational within fourteen (14) calendar days following notification to proceed by the Engineer. This 14-day period shall be in effect throughout the entire year, including the off season, regardless of the Contractor's working day status. Failure by the Contractor to complete the loop installation(s) within the specified timeframe shall result in liquidated damages in the amount of **$500.00** per calendar day, per occurrence.

This work shall be paid for at the contract unit price per foot for DETECTOR LOOP, TYPE I or PREFORMED DETECTOR LOOP as specified in the plans, which price shall be payment in full for furnishing and installing the detector loop and all related connections for proper operation.

ELECTRIC CABLE

Delete “or stranded, and No. 12 or” from the last sentence of Article 1076.04 (a) of the “Standard Specifications”.

Add the following to the Article 1076.04(d) of the Standard Specifications:

Service cable may be single or multiple conductor cable.

The electric service cable shall have an XLP jacket. All other cable jackets shall be polyvinyl chloride, meeting the requirements of IMSA 19-1 or IMSA 20-1. The jacket color for signal cable shall be black. The jacket color for lead-in and communications cable shall be gray. All cabling between the signal cabinet and the signal heads shall be solid copper, not multi-stranded. Heat shrink splices shall be used according to the IDOT District 1 “Standard Traffic Signal Design Details".

GROUNDING CABLE

The cable shall meet the requirements of Section 817 of the "Standard Specifications", except for the following:

Add to Article 817.02 of the “Standard Specifications”:
Unless otherwise noted on the Plans, the system grounding cable shall be one conductor, #6 gauge copper, with an XLP jacket.

The traffic signal grounding conductor (system grounding cable) shall be bonded, using a Listed grounding connector (Burndy type KC/K2C, as applicable, or approved equal), to all new and existing traffic signal mast arm poles and traffic/pedestrian signal posts, including push button

posts. The grounding conductor shall be bonded to all new and existing pull boxes, handhole frames and covers and other metallic enclosures throughout the traffic signal wiring system and noted herein and detailed on the plans. Bonding to existing handhole frames and covers shall be paid for separately.

Add the following to Article 817.05 of the "Standard Specifications":

Basis of Payment. Payment shall be at the Contract unit price, per foot, for ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUNDING CONDUCTOR, NO. 6 1C, which price includes all associated labor and material including grounding clamps, splicing, exothermic welds/other UL Listed connectors and hardware.

RAILROAD INTERCONNECT CABLE

The cable shall meet the requirements of Section 873 of the "Standard Specifications", except for the following:

Add the following to Article 873.02 of the "Standard Specifications":

The cable shall be three conductor standard #14 copper cable in a clear polyester binder, shielded with #36 AWG tinned copper braid with 85% coverage, and insulated with .016 inch polyethylene (black, blue, red). The jacket shall be black 0.045 PVC or polyethylene.

Revise Article 873.06 of the "Standard Specifications" to read:

Basis of Payment. This work shall be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, RAILROAD, NO. 14 3C, which price shall be payment in full for furnishing, installing, and making all electrical connections in the traffic signal controller cabinet. Connections in the railroad controller cabinet shall be performed by railroad personnel.

ELECTRIC CABLE IN CONDUIT, COAXIAL

This work shall consist of furnishing and installing a Belden 1694A RG-6/U Type Digital Coaxial Cable or approved equal. The cable shall be a 75-ohm coaxial cable with 18 AWG solid bare copper conductor, tinned copper braided shield (95% min), and black polyvinyl chloride jacket. The nominal outside diameter shall be 0.274 inches. Amphenol 31-71032 (or equivalent) BNC plug connectors shall be used at both the PTZ camera and traffic signal cabinet ends of the cable. An Amphenol CLT-2 crimping tool is required for the termination. No splices shall be allowed in the cable between the PTZ camera and the traffic signal cabinet.

Basis of payment. This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, COAXIAL, which price shall be payment in full for furnishing the material, making all electrical connections and installing the cable complete, measured as specified herein.

EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C

This work shall consist of furnishing and installing lead-in cable for light detectors installed at existing and/or proposed traffic signal installations as part of an emergency vehicle priority system. The work includes installation of the lead-in cables in existing and/or new conduit. The electric cable shall be shielded and have (3) stranded conductors colored blue, orange, and yellow with a stranded tinned copper drain wire. The cable shall meet the requirements of the manufacturer of the Emergency Vehicle Priority System Equipment.

Basis of Payment. This work will be paid for at the contract unit price per foot for EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operations.

ELECTRICAL CABLE IN CONDUIT, VIDEO NO 20 4 C

This work shall consist of furnishing and installing a Belden 5402 FE Cable or approved equal. No splices shall be allowed in the cable between the PTZ camera and the traffic signal cabinet.

Basis of payment. This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, VIDEO NO. 20 4 C, which price shall be payment in full for furnishing the material, making all electrical connections and installing the cable complete, measured as specified herein.

OUTDOOR RATED NETWORK CABLE

This work shall consist of furnishing and installing a network cable from the traffic signal cabinet to the associated field device shown on the plans.

The outdoor rated network cable shall be a black Category 5e cable, meeting the TIA/EIA 568-B.2 telecommunication standards. The cable shall be composed of 24 AWG solid bare copper conductors, twisted pairs, polyolefin insulation, inner LLPE jacket, overall shield (100% coverage), 24 AWG stranded TC drain wire, industrial grade sunlight- and oil-resistant LLPE jacket. The cable shall be capable of performing from -40 ºC to 70 ºC.

Each end of the cable shall be terminated with an RJ-45 connector installed according to the TIA/EIA 568B standard. The drain wire at each end shall be terminated with a ring lug and attached to a suitable ground point.

The cable shall be Belden 7937A or approved equivalent.

The work shall be performed according to the applicable portions of Section 873 of the "Standard Specifications", and details as shown on the plans.

Basis of payment. This work will be paid for at the contract unit price per foot for OUTDOOR RATED NETWORK CABLE. The unit price shall include furnishing and installing the cable, and making all connections necessary for proper operation. Furnishing and installing the RJ-45 connectors, ring terminals and grounding the OUTDOOR RATED NETWORK CABLE shall be included in the cost of this pay item.

TRAFFIC-ACTUATED CONTROLLER

Add the following to Section 857 of the "Standard Specifications":

The controller shall be the latest model available that is compatible with "*Centracs"* software or "Aries" software, currently in use by LCDOT, and shall be NEMA TS2 Type 1 compatible, unless specified otherwise on the plans. Controller software compatibility requirements are based upon the controller's location in the communication system, and shall be as shown on the plans. The controller shall have the latest version of NTCIP software installed, and be equipped with an Ethernet port and a removable data key to save the controller database. Only controllers supplied by approved IDOT District 1 closed-loop equipment manufacturers will be allowed. The traffic signal controller shall provide features to inhibit simultaneous display of circular yellow and yellow arrow indications.

CONTROLLER CABINET AND PERIPHERAL EQUIPMENT

Add the following to Article 1074.03 of the "Standard Specifications":

Cabinets shall be designed for NEMA TS2 Type 1 operation. All cabinets shall be pre-wired for a minimum of eight (8) phases of vehicular, four (4) phases of pedestrian, and four (4) phases of overlap operation. Individual load switches shall be provided for each vehicle, pedestrian and right turn overlap phase.

- Cabinets – Controller cabinets shall have a footprint of approximately 44 inches wide by 26 inches deep. Type IV cabinets shall be 65 inches high, and shall provide a third shelf for mounting additional equipment. Type V cabinets shall be 77 inches high. Cabinets shall be fabricated of 1/8" thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
- Cabinet Doors – Provide front and rear doors of NEMA type 3R construction with cellular neoprene gasket that is rain tight. Door hinges shall be continuous 14-gauge stainless steel and shall be secured with ¼-20 stainless steel carriage bolts. Standard equipment shall include a three-point locking system that secures the door at the top, bottom and center. A corbin lock with two keys shall also be furnished. The door shall be equipped with a two-position doorstop, one at 90° and one at 120°.
- Controller Harness – Provide a TS2 Type 2 "A" harness in addition to the TS2 Type 1 harness.
- Surge Protection – Atlantic Scientific ZoneIT Model 91391 base station, Model 91375 ZoneIT pluggable module (50kA rating) with LED status indicators, or approved equivalent.
- BIU – Containment screw required.
- Switch Guards – All switches shall be guarded.
- Back Panel – The back panel wiring shall be securely covered with a piece of plexiglass, minimum thickness 1/8-inch.
- Heating – One (1) 200-watt, thermostatically-controlled, Hoffman electric heater, or approved equivalent.
- Lighting – Four (4) LED light assemblies shall be included along the top and sides of the cabinet. The LED panels shall be controlled by a wall switch. Relume Traffic Control Box LED panels and power supply, or approved equivalent.
- Plan & Wiring Diagrams – 12" x 16" moisture sealed container attached to door.
- The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1 ½ inch deep drawer shall be provided in the cabinet, mounted directly beneath the controller support shelf. The drawer shall have a hinged top cover and shall be capable of accommodating one (1) complete set of cabinet prints and manuals. This drawer shall support 50 lbs. in weight when fully extended. The drawer shall open and close smoothly. Drawer dimensions shall make maximum use of available depth offered by the controller shelf and be a minimum of 24 inches wide.
- Detector Racks – Full-size rack fully wired to support one BIU, sixteen channels of vehicle detection, and four channels of EVP.
- Field Wiring Labels – All field wiring shall be labeled.
- Field Wiring Termination – Approved channel lugs required.
- Power Supply – Provide a nonconductive shield.
- Circuit Breaker – The signal circuit breaker shall be sized for the proposed load, but shall not be rated less than thirty (30) amps.
- Police Door – Provide wiring and termination for plug-in manual phase advance switch.

- Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or approved equivalent.
- MMU – 16 Channel, LCD display, IP addressable (Ethernet) Malfunction Management Unit. The MMU shall be connected to the Ethernet switch with a CAT 5e cable, and configured for proper communication.
- Door Alarm – The front and rear doors shall be equipped with switches wired to the traffic signal controller alarm 1 input for logging and reporting of a door open condition.

FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL

This item shall comply with Sections 857 and 863 of the "Standard Specifications" for Road and Bridge Construction, and shall also comply with the following requirements:

The controller shall meet the requirements for NEMA-TS2 standards for a Type 1 Cabinet. The controller shall be the latest model available that is compatible with "*Centracs"* software or "Aries" software, currently in use by LCDOT. Controller software compatibility requirements are based upon the controller's location in the communication system, and shall be as shown on the plans. The controller shall have the latest version of NTCIP software installed, and be equipped with an Ethernet port and a removable data key to save the controller database.

The cabinet shall be NEMA TS2 Type 1 design, meeting the requirements of CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.

Basis of payment. This item will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL which price shall be payment in full for furnishing and installing the cabinet and controller, complete with necessary connections and equipment for proper operation, at a location designated by the Engineer.

TRAFFIC ACTUATED CONTROLLER & CABINET INTERCONNECTED WITH RAILROADS

Add the following to Articles 1073.01 (c) (2) and 1074.03 (a) (5) (e) of the Standard Specifications:

Controllers and cabinets shall be new and NEMA TS2 Type 1 design.

A method of monitoring and/or providing redundancy to the railroad preemptor input to the controller shall be included as a component of the Railroad, Full Actuated Controller and Cabinet installation and be verified by the traffic signal equipment supplier prior to installation. The cabinet shall be NEMA TS2 Type 1 design, meeting the requirements of CONTROLLER CABINET AND PERIPHERAL EQUIPMENT and FULL ACTUATED CONTROLLER, IN TYPE IV CABINET, (SPECIAL).

Railroad interconnected controllers and cabinets shall be assembled only by an approved traffic signal equipment supplier. All railroad interconnected (including temporary railroad interconnect) controllers and cabinets shall be new, built, tested and approved by the controller equipment vendor, in the vendor's IDOT District 1 facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

MASTER CONTROLLER

Revise Articles 860.02 and 860.03 of the "Standard Specifications" to read:

The Master Controller shall be the latest model available that is compatible with "Aries"

software, currently in use by LCDOT. The minimum baud rate for fiber optic interconnected signal systems shall be 9600 bps.

This item shall also include the installation of an outdoor network interface for termination of the telephone service and a US Robotics 56k modem. The outdoor network interface shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service. The outdoor network interface shall be equipped with a standard Three-Electrode Heavy Duty Gas Tube Surge Arrestor.

INTERSECTION MONITOR

This item shall consist of furnishing and installing an Intersection Monitor at a new or existing traffic signal controller. This item is necessary at isolated (non-interconnected) traffic signals in order to monitor the intersection and controller operations. The Intersection Monitor shall be either an internal module installed in the controller, or an external data key, and shall be the latest model available. The Intersection Monitor shall be fully compatible with “Aries” traffic signal management software, currently in use by LCDOT.

This item shall also include the installation of an outdoor network interface for termination of the telephone service and a US Robotics 56k modem. The outdoor network interface shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service. The outdoor network interface shall be equipped with a standard Three-Electrode Heavy Duty Gas Tube Surge Arrestor.

Basis of payment. This item will be paid for at the contract unit price each for INTERSECTION MONITOR, which price shall be payment in full for furnishing and installing the Intersection Monitor (module or data key) complete with all necessary connections and equipment for proper operations.

INDUCTIVE LOOP DETECTOR.

Add the following to Article 1079.01 of the Standard Specifications:

Contracts requiring new cabinets shall provide for rack mounted detector amplifier cards. Detector amplifiers shall provide LCD displays with loop frequency, inductance, and change of inductance readings.

UNINTERRUPTABLE POWER SUPPLY, SPECIAL

This specification sets forth the minimum requirements for an uninterruptable power system (UPS) with battery back-up, for a traffic signal. The system is comprised of the UPS or Inverter unit, bypass switch, batteries, cabinet, and related wiring harnesses.

Revise Article 1074.04(a) (1) of the Standard Specifications to read:

The UPS shall be line interactive or double conversion and provide voltage regulation and power conditioning when utilizing utility power.

The UPS shall be sized appropriately for the intersection’s normal traffic signal operating connected load, plus 20 percent (20%). The total connected traffic signal load shall not exceed the published ratings for the UPS. The UPS shall provide a minimum of six (6) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 700 W/1000VA active output capacity, with 90 percent minimum inverter efficiency).

Revise Article 1074.04(a) (10) of the Standard Specifications to read:

The UPS shall be compatible with the County's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation.

Revise Article 1074.04(a) (17) of the Standard Specifications to read:

When the intersection is in battery backup mode, the UPS shall bypass all internal cabinet lights, ventilation fans, cabinet heaters, service receptacles, any lighted street name signs, any automated enforcement equipment and any other devices directed by the Engineer.

Revise Article 1074.04(b) (2)b of the Standard Specifications to read:

Batteries, inverter/charger and power transfer relay shall be housed in a separate NEMA Type 3R cabinet. The cabinet shall be Aluminum alloy, 5052-H32, 0.125-inch thick and have a natural mill finish.

Revise Article 1074.04(b) (2)c of the Standard Specifications to read:

No more than three batteries shall be mounted on individual shelves for a cabinet housing six batteries and no more than four batteries per shelf for a cabinet housing eight batteries.

Add the following to Article 1074.04(b) (2)e of the Standard Specifications:

The door shall be equipped with a two-position doorstop, one at 90° and one at 120°.

Revise Article 1074.04(b) (2)g of the Standard Specifications to read:

The door shall open to the entire cabinet and have a neoprene gasket, an Aluminum continuous piano hinge with stainless steel pin, and a three point locking system. The cabinet shall be provided with a main door lock which shall operate with a traffic industry conventional No. 2 key. Provisions for padlocking the door shall be provided.

Add the following to Article 1074.04(b) (2) of the Standard Specifications:

j. The battery cabinet shall have provisions for an external generator connection.

Add the following to Article 1074.04(c) of the Standard Specifications:

(8) The UPS shall include a tip or kill switch installed in the battery cabinet, which shall completely disconnect power from the UPS when the switch is manually activated.

(9) The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector provided shall be a NEMA L5-15P or NEMA L5-30P locking plug. The connector shall be rated for a minimum of 15/125VAC.

(10) A power adapter cord shall be provided which converts the supplied NEMA locking connector to a NEMA 5-15P plug. The power adapter cord shall be rated for a minimum of 15A/125VAC and shall be a minimum of 12 inches in length.

(11) Access to the generator inlet shall be from a secured weatherproof lift cover plate or behind a locked battery cabinet police panel.

Battery System.
Revise Article 1074.04(d) (3) of the Standard Specifications to read:

All batteries supplied in the UPS shall be either gel cell or AGM type, deep cycle, completely sealed, prismatic lead calcium based, silver alloy, valve regulated lead acid (VRLA) requiring no maintenance. All batteries in a UPS installation shall be the same type; mixing of gel cell and AGM types within a UPS installation is not permitted.

Revise Article 1074.04(d) (4) of the Standard Specifications to read:

Batteries shall be certified by the manufacturer to operate over a temperature range of -13 to 160 °F (-25 to + 71 °C) for gel cell batteries and -40 to 140 °F (-40 to + 60 °C) for AGM type batteries.

Add the following to Article 1074.04(d) of the Standard Specifications:

(9) The UPS shall consist of an even number of batteries that are capable of maintaining normal operation of the signalized intersection for a minimum of six hours. Calculations shall be provided showing the number of batteries of the type supplied that are needed to satisfy this requirement. A minimum of four batteries shall be provided.

Add the following to the Article 1074.04 of the Standard Specifications:

(e) Warranty. The warranty for an uninterruptable power supply (UPS) shall cover a minimum of two years from date the equipment is placed in operation; however, the batteries of the UPS shall be warranted for full replacement for a minimum of five years from the date the traffic signal and UPS are placed into service.

Basis of payment. This item shall be paid for at the contract unit price, each, for furnishing and installing the UNINTERRUPTABLE POWER SUPPLY, SPECIAL. The price shall include the UPS/Inverter unit, Bypass Switch, Batteries, Cabinet, wiring harnesses, power adapter cord, and all associated equipment and materials necessary for proper operation.

EMERGENCY VEHICLE PRIORITY SYSTEM
Revise Section 887 of the “Standard Specifications” to read:

If not marked in the Contract plans, it shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle preemption equipment to be installed prior to the contract bidding. The equipment must be of the latest type manufactured and must be completely compatible with all components of signal equipment currently in use by the County.

All new installations shall be equipped with confirmation beacons as shown on the IDOT District 1 “Standard Traffic Signal Design Details”. The confirmation beacon shall consist of a PAR 38 white LED flood lamp (90 watt equivalent, approved by the Engineer) for each direction of traffic. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. Holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the preemption signal. The preemption movement shall be signalized by a

flashing indication at the rate specified by Section 4L.01 of “MUTCD”. The stopped preempted movements shall be signalized by a continuous indication.

All light operated systems shall operate at a uniform rate of 14.035 hz ± 0.002 hz, or as otherwise required by the Traffic Engineer, and provide compatible operation with other light systems currently being operated in the County.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the EMERGENCY VEHICLE PRIORITY SYSTEM.

Basis of Payment. The work shall be paid for at the contract unit price each for furnishing and installing LIGHT DETECTOR and LIGHT DETECTOR AMPLIFIER. Furnishing and installing the confirmation beacon shall be included in the cost of the Light Detector. Any required modifications to the traffic signal controller shall be included in the cost of the LIGHT DETECTOR AMPLIFIER. The light detector amplifier shall be paid for on a basis of (1) one each per intersection controller and shall provide operation for all movements required in the pre-emption phase sequence.

STEEL MAST ARM ASSEMBLY AND POLE
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE
Add the following to Article 1077.03 of the “Standard Specifications”:

Traffic signal mast arms shall be one-piece construction, unless otherwise approved by the Engineer. All mast arms, mast arm poles, luminaire arms, cast iron bases, and any exposed steel hardware shall be hot-dipped galvanized.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Luminaire arms shall be steel, and of the length shown on the plans. Luminaire arms over fifteen (15) feet in length shall be tapered, monotube style, with AASHTO 2001 wrap-around, gusset style connection.

Luminaires shall be “cobra head” style, with a minimum mounting height of forty-five (45) feet, and shall be paid for separately.

Stainless steel mesh screening shall be stainless steel banded to the anchor bolts, with a minimum 2-inch lap, to enclose the void between the top of the foundation and the base plate. The mesh screening shall have ¼-inch maximum opening and a minimum wire diameter of AWG NO. 16.

The base of the mast arm pole shall be protected by a bolt-on galvanized metal shroud or an approved equal. The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall be constructed and designed to allow air to circulate throughout the mast arm but not allow infestation of insects or other animals, and such that it is not hazardous to probing fingers and feet. All mounting hardware shall be stainless steel.

STEEL MAST ARM ASSEMBLY AND POLE (SPECIAL)
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE (SPECIAL)
Add the following to Article 1077.03 of the “Standard Specifications”:

Base covers for mast arm poles shall be cast aluminum. All mast arms, mast arm poles, luminaire arms, and any exposed steel hardware shall be hot-dipped galvanized, and then powder-coated black by the supplier/manufacturer, as described below or an approved alternative finishing method. Cast aluminum base covers shall be powder-coated black by the supplier/manufacturer, as described below or an approved alternative finishing method.

All galvanized and aluminum exterior surfaces shall be coated with chip resistive epoxy resin primer applied via electrostatic spray equipment. The primer is to be applied at a minimum dry film thickness (DFT) of 3.0 mils with a minimum DFT of 6.0 mils applied to the lower 8 feet of the pole. The primer coat must be energy absorptive, and capable of achieving a rating of 10A under testing per ASTM (American Society for Testing and Materials) Procedure D3170, Standard Test Method for Chipping Resistance of Coatings. The primed surfaces shall then be coated with a black semi-gloss TGIC Super Durable Polyester topcoat to a minimum dry film thickness of 3.0 mils. The topcoat must meet the requirements of AAMA (American Architectural Manufacturer's Association) 2604 for color and gloss retention properties.

The manufacturer shall warranty the finish of all components for a period of at least 5 years from the date of shipment. The contractor shall provide a copy of the warranty to the Engineer, upon request.

All chips, scrapes, scratches, etc. in the paint shall be touched-up by the Contractor according to the manufacturer's recommendations, with matching paint supplied by the manufacturer.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Stainless steel mesh screening shall be stainless steel banded to the anchor bolts, with a minimum 2-inch lap, to enclose the void between the top of the foundation and the base plate. The mesh screening shall have ¼-inch maximum opening and a minimum wire diameter of AWG NO. 16.

All base covers shall fit tightly around the poles, with little or no gap at the top of the base cover. Two-piece base covers shall fit together tightly, with little or no gap between the two pieces. All base covers shall fit securely on top of the foundation, and shall not easily move or wobble. All base covers shall have an access hand hole, with a removable cover, and a minimum opening size of 200 square inches.

Pedestrian pushbutton stations shall be mounted to mast arm base covers according to the following: The top and bottom of the station shall be secured by drilling, tapping, and installing a 3/8-inch stainless steel threaded bolt, lock washer, and hex nut. Do not use self-tapping screws. Spacers made of 3/4-inch aluminum conduit shall be installed behind the pushbutton station, to level and plumb the station.

Luminaire arms shall be steel, and of the length shown on the plans. Luminaire arms over fifteen (15) feet in length shall be tapered, monotube style, with AASHTO 2001 wrap-around, gusset style connection.

Luminaires shall be installed at a minimum mounting height of forty-five (45) feet, and shall be paid for separately.

All (Special) steel mast arm assemblies and poles (including combination mast arm assemblies)

shall be manufactured and/or supplied by Sternberg Vintage Lighting, Union Metal, Valmont, or approved equal, according to the following:

- Round, tapered, 16-sharp fluted pole.
- Round, tapered, smooth, standard-curved, flange-connected, traffic signal mast arm

The two-piece mast arm base cover shall be cast aluminum, and shall be manufactured and/or supplied by the same company as the mast arm assembly and pole. Manufacturer designations for the two-piece mast arm base cover to be used with (SPECIAL) MAST ARM ASSEMBLIES include the following:

- Hamilton 6401SS (Sternberg)
- Lake County AC1 base cover (Valmont)

LUMINAIRE

Add the following to Article 1067.01(e) of the "Standard Specifications":

The luminaire housing shall be cobra head style.

Revise Article 1067.01(i) of the "Standard Specifications" to read:

The luminaire shall be painted black or powder-coated black to match the finish of STEEL COMBINATION MAST ARM ASSEMBLY AND POLE (SPECIAL).

TRAFFIC SIGNAL POST

Add the following to Article 1077.01 (d) of the "Standard Specifications":

Steel posts and cast iron bases shall be hot-dipped galvanized.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

TRAFFIC SIGNAL POST (SPECIAL)

Add the following to Article 1077.01 of the "Standard Specifications":

All Traffic Signal Posts (Special) shall be sixteen (16) feet in height, extruded aluminum, unless otherwise specified on the plans. All bases for Traffic Signal Post (Special) shall be cast aluminum.

All Traffic Signal Posts (Special) and associated bases shall be assembled and powder-coated black at the factory. The powder-coated finish and warranty shall meet the requirements of STEEL MAST ARM ASSEMBLY AND POLE (SPECIAL). All exposed steel hardware shall be hot-dipped galvanized, and then powder-coated black.

All chips, scrapes, scratches, etc. in the paint shall be touched-up by the Contractor according to the manufacturer's recommendations, with matching paint supplied by the manufacturer.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Pedestrian pushbutton stations shall be mounted to signal posts according to the following: The top and bottom of the station shall be secured by drilling, tapping, and installing a 3/8-inch stainless steel threaded bolt. Self-tapping screws are not allowed. Anti-seize lubricating compound shall be applied to all pushbutton and pushbutton station hardware. Spacers made of 3/4-inch aluminum conduit shall be installed behind the pushbutton station, to level and plumb the station.

All Traffic Signal Posts (Special) and associated bases shall be manufactured and/or supplied by Beacon, Sternberg Vintage Lighting, Union Metal, Valmont, or approved equal, according to the following:

- Round, straight (non-tapered), five (5)-inch diameter, 12-flat fluted post.
- A ball center cap for the top of the post, instead of a tenon.
- The base section of the post shall be approximately forty-three (43) inches tall.

Manufacturer designations for TRAFFIC SIGNAL POST (SPECIAL) include the following:

- MainStreet Series (100SJ) base (Beacon)
- Hamilton Series (5400D) base (Sternberg)

PEDESTRIAN PUSH-BUTTON

Replace Article 1074.02 of the “Standard Specifications” with the following:

Pedestrian Push-button assembly shall be ADA compliant, 3-inch round style, highly vandal resistant, non-moving, pressure activated, with a solid-state Piezo switch actuator that cannot be stuck in an “on” or constant call position. A latching red LED and audible tone shall be provided to confirm an actuation. The housing, or bezel, of the assembly shall be solid aluminum and powder coated yellow. The button shall be stainless steel or nickel-plated aluminum.

Pedestrian Push-button assembly shall be a Campbell Company 4 EVR CL with Enlightened Interface Module (ENIM), a Polara BullDog BDL3-Y with Latching Push Button Control Unit (LPBCU), or approved equivalent.

The pedestrian station shall be a Campbell Company 912H Station, Polara PBF9X12 or approved equivalent.

The station shall be installed with a 9-inch by 12-inch retro-reflective sign, according to the following: Where pedestrian signal heads are used, pedestrian signs shall provide the "Push Button for” legend, with the Walking Man symbol and arrow (R10-3). Where no pedestrian signal heads are used, pedestrian signs shall provide the "Push Button for Green Light” legend with arrow (R10-4 with arrow), or as specified on the plans.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Anti-seize lubricating compound shall be applied to all pushbutton and pushbutton station hardware.

Refer to STEEL MAST ARM ASSEMBLY AND POLE (SPECIAL), STEEL COMBINATION MAST ARM ASSEMBLY AND POLE (SPECIAL), and/or TRAFFIC SIGNAL POST (SPECIAL) for additional installation requirements.

ILLUMINATED SIGN, LIGHT EMITTING DIODE

Delete last sentence of Article 1084.01(a) and add "Mounting hardwire shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and bracket specified herein and shall provide tool free access to the interior."

Revise the second paragraph of Article 1084.01(a) of the Standard Specifications to read:

The exterior surface of the housing shall be acid-etched and shop painted with one coat of zinc-chromate primer and two coats of exterior enamel. The housing shall be the same color (yellow or black) to match the existing or proposed signal heads. The painting shall be according to Section 851.

Add the following to Article 1084.01 (b) of the Standard Specifications:

The message shall be formed by rows of LEDs. The sign face shall be 24 inches by 24 inches .

Add the following to Article 1084.01 of the Standard Specifications:

(e) The light emitting diode (LED) blank out signs shall be manufactured by National Sign & Signal Company, or an approved equal and consist of a weatherproof housing and door, LEDs and transformers.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Basis of payment. This work shall be paid for at the unit price each for ILLUMINATED SIGN, LIGHT EMITTING DIODE.

LED INTERNALLY ILLUMINATED STREET NAME SIGN

This work shall consist of furnishing a street name sign which is internally illuminated with light emitting diodes, and installing the sign on a traffic signal mast arm or span wire.

(a) Description.

The LEDs shall be white in color and utilize InGaN or UV thermally efficient technology. The LED Light Engines shall be designed to fit inside a standard fluorescent illuminated street sign housing in lieu of fluorescent lamps and ballasts. The LED internally-illuminated street name sign shall display the designated street name clearly and legibly in the daylight hours without being energized and at night when energized. The sign assembly shall consist of a four-, six-, or eight-foot aluminum housing. White translucent 3M DG^3 reflective sheeting sign faces with the street name applied in 3M/Scotchlite Series 1177 or current 3M equivalent transparent green shall be installed in hinged doors on the side of the sign for easy access to perform general cleaning and maintenance operations. Illumination shall occur with LED Light Engine as specified.

(b) Environmental Requirements.

The LED lamp shall be rated for use in the ambient operating temperature range of -40 to +50°C (-40 to +122°F) for storage in the ambient temperature range of -40 to +75°C (-40 to +167°F).

(c) General Construction.

1. The LED Light Engine shall be a single, self-contained device, for installation in an existing street sign housing. The power supply must be designed to fit and mounted on the inside wall at one end of the street sign housing. The LED Light Engine shall be

mounted within the inner top portion of the housing and no components of the light source shall sit between the sign faces.

2. The assembly and manufacturing processes of the LED Light Engine shall be designed to ensure that all LED and electronic components are adequately supported to withstand mechanical shocks and vibrations in compliance with the specifications of the ANSI, C136.31-2001 standards.

(d) Mechanical Construction.

1. The sign shall be constructed using a weatherproof, aluminum housing consisting of an extruded aluminum top with a minimum thickness of .140" x 10 ¾" deep (including the drip edge). The extruded aluminum bottom is .094" thick x 5 7/8" deep. The ends of the housing shall be cast aluminum with a minimum thickness of .250". A six-foot sign shall be 72 5/8" long and 22 5/16" tall and not weigh more than 77 pounds. An eight-foot sign shall be 96 5/8" long and 22 5/16" tall and not weigh more than 92 pounds. All corners are continuous TIG (Tungsten Inert Gas) welded to provide a weatherproof seal around the entire housing.

2. The door shall be constructed of extruded aluminum. Two corners are continuous TIG welded with the other two screwed together to make one side of the door removable for installation of the sign face. The door is fastened to the housing on the bottom by a full length, .040" x 1 1/8" open stainless steel hinge. The door shall be held secure onto a 1" wide by 5/32" thick neoprene gasket by three (six total for two-way sign) quarter-turn fasteners to form a watertight seal between the door and the housing.

3. The sign face shall be constructed of .125" white translucent polycarbonate. The letters shall be 8" upper case and 6" lower case. The sign face legend background shall consist of 3M/Scotchlite Series 4090T or current equivalent 3M translucent DG^3 white VIP (Visual Impact Performance) diamond grade sheeting (ATSM Type 9) and 3M/Scotchlite Series 1177 or current 3M equivalent transparent green acrylic EC (electronic cut-able) film applied to the front of the sign face. The legend shall be framed by a white polycarbonate border. A logo symbol and/or name of the community may be included with approval of the Engineer.

4. All surfaces of the sign shall be etched and primed in accordance to industry standards before receiving appropriate color coats of industrial enamel. The sign frame shall be painted black with a durable powder coated process.

5. All fasteners and hardware shall be corrosion resistant stainless steel. No tools are required for routine maintenance.

6. All wiring shall be secured by insulated wire compression nuts.

7. A wire entrance junction box shall be supplied with the sign assembly. The box may be supplied mounted to the exterior or interior of the sign and provide a weather tight seal.

8. Each sign shall be activated by a photocell mounted/installed on the side of the sign frame.

9. Brackets and Mounting: LED internally-illuminated street name signs will be factory drilled to accommodate mast arm two-point support assembly mounting brackets.

(e) Electrical.

1. Photocell shall be rated 105-305V, turn on at 1.5 fcs. with a 3-5 second delay. A manufacturer's warranty of six (6) years shall be provided. Power consumption shall be no greater than 1 watt at 120V.

2. The LED Light Engine shall operate from a 60 +- 3 cycle AC line power over a voltage range of 80 to 135 Vac rms. Fluctuations in line voltage over the range of 80 to 135 Vac shall not affect luminous intensity by more than +- 10%.

3. Total harmonic distortion induced into the AC power line by the LED Light Engine, operated at a nominal operating voltage, and at a temperature of +25°C (+77°F), shall not exceed 20%.

4. The LED Light Engine shall cycled ON and OFF with a photocell as shown on the detail sheet and shall not exceed the following maximum power values:

4-Foot Sign	60 W
6-Foot Sign	90 W
8-Foot Sign	120 W

The signs shall not be energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptable power source (UPS). The signs shall be connected to the generator or UPS bypass circuitry.

(f) Photometric Requirements.

1. The entire surface of the sign panel shall be evenly illuminated. The average maintained luminous intensity measured across the letters, operating under the conditions defined in Environmental Requirements and Wattage Sections shall be of a minimum value of 100 cd/m^2.

2. The manufacturer shall make available independent laboratory test results to verify compliance to Voltage Range and Luminous Intensity Distribution Sections.

3. Twelve (12) 1.25 watt LED units shall be mounted on 1-inch x 22-inch metal cone printed circuit boards (MCPCB). The viewing angle shall be 120 degrees. LED shall have a color temperature of 5200k nominal, CRI of 80 with a life expectancy of 75,000 hrs.

(g) Quality Assurance.

The LED Light Engine shall be manufactured in accordance with a vendor quality assurance (QA) program. The production QA shall include statistically controlled routine tests to ensure minimum performance levels of the LED Light Engine build to meet this specification. QA process and test result documentations shall be kept on file for a minimum period of seven (7) years. The LED Light Engine that does not satisfy the production QA testing performance requirements shall not be labeled, advertised, or sold as conforming to these specifications. Each LED Light Engine shall be identified by a manufacturer's serial number for warranty purposes. LED Light Engines shall be replaced or repaired if they fail to function as intended due to workmanship or material defects within the first sixty (60) months from the date of acceptance. LED Light Engines that exhibit luminous intensities less than the minimum value specified in Photometric Section within the first thirty-six (36) months from the date of acceptance shall be replaced or repaired.

The sign shall be mounted on the mast arm three feet to the right of the furthest right signal head, as viewed by the approaching traffic.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The Manufacturer/Vendor shall supply shop drawings of the fixtures, sign, sign message and mounting hardware for approval. All hardware used to install the sign shall be in accordance with the manufacturer's recommendations.

Basis of Payment. This work will be paid for at the contract unit price each for furnishing and installing LED INTERNALLY ILLUMINATED STREET NAME SIGN, of the size specified, complete in place, including photocell and all related hardware, wiring, and connections required for proper operations. The #14 2/C cable from the signal cabinet to the sign shall be paid for separately.

MAST ARM SIGN PANELS
Add the following to Article 720.02 of the Standard Specifications:

Signs attached to poles or posts (such as mast arm signs) shall have mounting brackets and sign channels which are equal to and completely interchangeable with those used by LCDOT. All aluminum signs shall have a white reflectorized legend and border on a green reflectorized background, DG^3 type sheeting. The sign face shall not have any holes. 3M Scotch Joining Systems bonding tape or an approved equal shall be used in place of screws or rivets. The Signfix Aluminum Channel Framing System is currently recommended, but other brands of mounting hardware or bonding tape may be acceptable based upon LCDOT approval.

SIGNAL HEADS
Add the following to Section 1078 of the Standard Specifications to read:

All vehicle signal and pedestrian signal heads shall provide 12-inch displays, with glossy black polycarbonate housings, with the following exception: At locations where existing yellow polycarbonate heads will remain, all new signal heads shall be yellow to match the existing ones. Connecting hardware and mounting brackets shall be polycarbonate, the same color as the heads, or galvanized. A corrosive resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on. Where required, incandescent bulbs shall be manufactured by Duratest, Sylvania or an approved equal.

SIGNAL HEAD, LED
This work shall consist of furnishing and installing a traffic signal head with light emitting diodes (LED) of the type specified in the plans, in accordance with Sections 880 and 1078 of the Standard Specifications for Road and Bridge Construction, and the following.

The lens of the LED signal module shall be tinted with a wavelength-matched color to reduce sun phantom effect and enhance on/off contrast. The tinting shall be uniform across the lens face, and shall not affect chromaticity. The lens shall be smooth, with the same uniform appearance as incandescent lenses.

Each individual LED signal module shall be clearly marked with the manufacturer's name, model number, date of manufacture, nominal operating voltage, and power consumption in watts.

The LED signal module shall have a one-piece neoprene gasket.

The LEDs arrow indication shall be a solid display with a minimum of three (3) outlining rows of LEDs and at least one (1) fill row of LEDs.

All LED signal modules shall be warranted for 5 years from the date of traffic signal turn-on against failures due to manufacturing, workmanship, or material defects including modules which exhibit luminous intensities less than the minimum values specified by the Institute for Transportation Engineers (ITE) LED purchase specification, “Vehicle Traffic Control Signal Heads: LED Circular Signal Supplement”. Any modules that do not meet these warranty requirements shall be replaced or repaired at no expense to the County. The manufacturer's written warranty for the LED signal modules shall be included in the product submittal to the County.

PEDESTRIAN SIGNAL HEAD, LED
PEDESTRIAN SIGNAL HEAD, LED, COUNTDOWN

This work shall consist of furnishing and installing a pedestrian countdown signal head, with light emitting diodes (LED) of the type specified in the plans, in accordance with Section 881 and Article 1078.02 of the Standard Specifications for Road and Bridge Construction, and the following.

Pedestrian Countdown Signal Heads shall not be used at signalized intersections where traffic signals and railroad warning devices are interconnected.

The nominal message-bearing surface of pedestrian signal heads shall be 12 in. x 12 in.

Pedestrian Countdown Signal Heads shall consist of two (2) 12-inch by 12-inch modules aligned vertically. The top module of the unit shall be overlapping full “HAND” and full “MAN” symbols. The bottom module of the unit shall be a two digit numerical countdown display (“00” to “99”). The counter shall begin countdown at the beginning of the pedestrian clearance interval as the pictogram of the hand starts flashing. The counter shall execute a countdown of the time, in seconds, of the pedestrian clearance interval synchronized with the controller and ending at (0) at the expiration of the pedestrian clearance interval. The counter shall be blank at all other times.

The visor for each signal shall be the tunnel visor.

The signal module shall have a one-piece neoprene gasket.

The signal module identification labels and warranty shall be according to the SIGNAL HEAD, LED section of these specifications.

SIGNAL HEAD, LED, RETROFIT

This work shall consist of furnishing and installing vehicle or pedestrian LED signal modules in an existing signal head, of the type and mounting specified in the plans, according to the following.

All vehicle and pedestrian LED Retrofit signal modules shall fully comply with the SIGNAL HEAD, LED; PEDESTRIAN SIGNAL HEAD, LED; and PEDESTRIAN SIGNAL HEAD, LED, COUNTDOWN sections of these specifications.

Basis of Payment. This item shall be paid for at the contract unit price each for SIGNAL HEAD, LED, of the type and mounting specified, RETROFIT or PEDESTRIAN SIGNAL HEAD, LED, RETROFIT; or PEDESTRAIN SIGNAL HEAD, LED, COUNTDOWN, RETROFIT, which price shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition.

TRAFFIC SIGNAL BACKPLATE

Delete the second sentence of the fourth paragraph of Article 1078.03 of the Standard Specifications.

Add the following to the fourth paragraph of Article 1078.03 of the Standard Specifications:

When retro reflective sheeting is specified, it shall be Type ZZ sheeting according to Article 1091.03 and applied in preferred orientation for the maximum angularity according to the manufacturer's recommendations. The retro reflective sheeting shall be installed under a controlled environment at the manufacturer/supplier before shipment to the contractor. The aluminum backplate shall be prepared and cleaned, following recommendations of the retro reflective sheeting manufacturer.

VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION)

This specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images and provides detector outputs to a traffic signal controller. This work shall consist of furnishing and installing video cameras, all cables, video processors, controller interface unit, and remote communication module to operate a video vehicle detection system at one signalized intersection.

The video detection system, (complete intersection) shall be one of the following or approved equal:

- Autoscope Encore, Terra TIP, Terra TAP
- Iteris RZ-4 WDR, Vantage Edge 2, Vantage TS2-IM, Edge Connect
- Autoscope AIS-IV, Terra RackVision,

All the cables from the detection cameras to the traffic signal cabinet and within the traffic signal cabinet itself shall be included in the cost of this item.

The video detection system, (complete intersection) shall also include a LCD monitor in the traffic signal cabinet with BNC connector for video input.

The video detection camera shall be installed on top of the luminaire arm. However, occasionally overhead utility wires obstruct the camera's field of view and prevent proper detector placement. When this occurs, the camera shall be installed on a J-hook below the luminaire arm, instead of the normal mounting bracket. The cost of the J-hook shall be included in the cost of this item.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Surge protection and grounding shall be provided to protect the video detection cameras and components located in the traffic signal cabinet.

In order for the Traffic Engineer to manipulate detection zones and view the video signal over a high- speed connection, the VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) must be connected to either the LCDOT Gigabit Ethernet network or a VIDEO TRANSMISSION SYSTEM.

If the VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) is being connected to the Gigabit Ethernet network, the remote communications module shall communicate over 10/100 Base T Ethernet to a LAYER II (DATA LINK) SWITCH and/or a LAYER III (NETWORK) SWITCH. The Layer II and Layer III switches shall be installed according to the plans, and shall be paid for separately.

Basis of Payment. This item will be paid for at the contract unit price each for VIDEO DETECTION SYSTEM, (COMPLETE INTERSECTION) which price shall be payment in full for furnishing all associated equipment, cables and hardware required, installing the system at one signalized intersection, and placing the system in operation to the satisfaction of the Engineer.

REMOTE-CONTROLLED VIDEO SYSTEM

This pay item shall include providing and installing a remote-controlled video system at a location designated by the Engineer. The remote-controlled video system shall be a PELCO Spectra IV SE Series Discreet Dome System or approved equal. This pay item shall include a color camera (minimum 35x optical zoom), dome assembly, all mounting hardware, connectors, cables, and related equipment necessary to complete the installation in accordance with the manufacturer's specifications.

The PTZ control, power, and coax cables from the traffic signal cabinet shall be paid for separately.

The camera shall be installed as shown on the plans, either on the luminaire arm near the luminaire, or on the combination mast arm assembly pole, angled toward the center of the intersection. When installed on the pole, the camera shall be mounted with a 14-inch pendant arm with integral transformer / power supply (Pelco IWM24-GY or approved equal). When installed on the luminaire arm, the camera shall be installed with a 30-degree tilt-adjustable bracket, and the external power supply (Pelco WCS1-4 or approved equal) shall be installed on the pole. Cameras and external power supplies shall be installed with stainless steel straps.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The contractor shall contact the Traffic Engineer prior to installing the Pelco camera and associated wiring, to receive final approval on the camera location.

In order for the Traffic Engineer to control the camera remotely and view the video signal over a high-speed connection, the REMOTE-CONTROLLED VIDEO SYSTEM must be connected to either the LCDOT Gigabit Ethernet network or a VIDEO TRANSMISSION SYSTEM.

If the REMOTE-CONTROLLED VIDEO SYSTEM is being connected to the Gigabit Ethernet network, then a LAYER II (DATA LINK) SWITCH and/or a LAYER III (NETWORK) SWITCH will be required. Layer II and Layer III switches shall be installed according to the plans, and shall be paid for separately.

If the REMOTE-CONTROLLED VIDEO SYSTEM is being connected to a new or existing VIDEO TRANSMISSION SYSTEM, then fiber-optic video/data transmitters and receivers may be required. Fiber-optic video/data transmitters and receivers are necessary whenever the REMOTE-CONTROLLED VIDEO SYSTEM and the VIDEO TRANSMISSION SYSTEM are installed at separate signalized intersections. When required, fiber-optic video/data transmitters and receivers shall be installed according to the plans, and shall be included in the cost of this item. The VIDEO TRANSMISSION SYSTEM shall be paid for separately.

Basis of Payment. This item will be paid for at the contract unit price each for REMOTE-CONTROLLED VIDEO SYSTEM, which price shall be payment in full for furnishing all associated equipment required, installing the system complete and in place, and placing the system in operation to the satisfaction of the Engineer.

CAMERA MOUNTING ASSEMBLY

This work shall consist of modifying an existing traffic signal mast arm pole to accommodate an extension pole suitable for mounting a CCTV Camera. The pole extension shall be a 20-foot long, 4-inch diameter, Schedule 80 galvanized steel pipe and fastened to the existing mast arm pole with adjustable, galvanized steel clamps as indicated in the plans. The galvanized clamps shall fit securely around the tapered mast arm and shall be modified as required to maintain a true vertical alignment of the camera mounting assembly pole. The exposed wires shall be trained into a drip loop and protected with black plastic spiral cable wrap.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Basis of payment. This work shall be paid for at the contract unit price each for CAMERA MOUNTING ASSEMBLY, which shall include all necessary mounting hardware, labor, and incidentals necessary to securely fasten the assembly to an existing pole and placing the camera in operation to the satisfaction of the Engineer. The camera, cables, connectors, and related equipment shall be paid for separately as part of REMOTE-CONTROLLED VIDEO SYSTEM.

VIDEO TRANSMISSION SYSTEM

This specification sets forth the minimum requirements for a video transmission system that allows a user to transmit video output from multiple cameras to a remote location, via video transmitter(s) and a high-speed communication link.

The high-speed communication link will be either an ISDN phone line or DSL connection as indicated on the plans.

The VIDEO TRANSMISSION SYSTEM may be installed in either the intersection traffic signal cabinet or in the VIDEO COMMUNICATIONS CABINET. The Cabinet shall be paid for separately.

The VIDEO TRANSMISSION SYSTEM may include the relocation of existing video transmitter(s), ISDN modems, Cisco router, and/or high-speed Internet modem(s) to a new traffic signal cabinet. The relocation of such existing equipment to a new traffic signal cabinet shall be performed as directed by the Engineer and included in the cost of the VIDEO TRANSMISSION SYSTEM. Any item damaged during removal, storage, or reinstallation shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

System Components:
The system shall consist of video transmitter(s) (ADPRO Fast Tx or approved equal) or a high-speed Internet modem(s), a Cisco Router, and related connection cables.

High-Speed Internet Modem:
The high-speed Internet modem shall be provided by the County or the Internet Service Provider.

The Cisco Router shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for VIDEO TRANSMISSION SYSTEM, which price shall be payment in full for furnishing and/or relocating all associated equipment required, installing the system complete and in place, and placing the system in operation to the satisfaction of the Engineer

COMMUNICATIONS CABINET
This specification sets forth the minimum requirements for a communications cabinet to be installed at the location(s) shown in the plans.

The Communications Cabinet shall be a Model 332 (Type 170) Controller Cabinet, with heat exchanger, or approved equal. The heat exchanger shall be thermostatically controlled to maintain the temperature between 32°F and 122°F within the enclosure. The cabinet shall be constructed of 0.125"-thickness, alloy-5052 sheet aluminum. The surface shall have a smooth, natural aluminum mill finish. The cabinet shall measure 24" wide x 30" deep x 55" high.

The communications cabinet shall have front and rear doors of NEMA type 3R construction with cellular neoprene gasket that is rain tight. Door hinges shall be continuous 14-gauge stainless steel and shall be secured with ¼-20 stainless steel carriage bolts. Standard equipment shall include a three-point locking system that secures the door at the top, bottom and center. A corbin lock with two keys shall also be furnished. The front and rear doors shall be equipped with a two-position doorstop, one at 90° and one at 120°. Door locking rods are ¼" x ¾" aluminum turned edgeways with 1" nylon rollers. Door handles shall be cast aluminum.

The front and rear doors shall be equipped with alarm switches wired to an I/O module. The I/O module shall be connected to the Layer III network switch to transmit door open and closed alarms to the TMC. The I/O device shall be a Moxa E2210, Advantech ADAM-6050, or approved equal meeting the following requirements:

- 10/100BaseT LAN connection
- Supports Modbus/TCP over a TCP/IP network
- Minimum of 8 digital dry-contact inputs (logic level 0 = short to GND, logic level 1 = open)
- -10C to +60C Power: 24VDC nominal
- Mounting: DIN rail

The communications cabinet shall be base mounted and equipped with inside flanges and anchoring holes in the front and back of the cabinet for anchoring to a base.

The communications cabinet shall be equipped with a 19" Electronic Industries Association (EIA) rack using 1.75" hole spacing for the purpose of mounting rack-mountable cabinet equipment. The cabinet shall include a fiber optic connector housing, Corning Cable Systems CCH-04U, or approved equal, and a splice housing, Corning Cable Systems CSH-03U, or approved equal, mounted on the 19" rack.

The communications cabinet shall also be equipped with a 15A rackmount power distribution unit and a pull-out drawer/ shelf assembly.

The heat exchanger handles the air inside the communication cabinet, as necessary, to maintain the equipment within the desired temperature range. Therefore, the cabinet shall be fully enclosed, with no louvers in any doors or side panels. No fans or thermostats shall be installed in the communication cabinet.

A power panel shall be included with the cabinet and shall include the following:

- 50-amp circuit breaker. This circuit breaker shall supply power to all devices in the cabinet.
- The main breaker shall be thermal magnetic type, U.L. listed for HACR service, with a minimum of 20,000 amp interrupting capacity.
- Two 15-amp load breakers with minimum 10,000 amp interrupting capacity.
- Two 20-amp load breakers with minimum 10,000 amp interrupting capacity.
- Atlantic Scientific ZoneIT Model 91391 base station, Model 91375 ZoneIT pluggable module (50kA rating) surge arrestor, with LED status indicators, or approved equivalent.
- A 15-position neutral bus bar capable of connecting three #12 wires per position.
- A 7-position ground bus bar capable of connecting three #12 wires per position.
- A NEMA type 5-15R GFI convenience outlet.

The heat exchanger shall be mounted on the side of the communications cabinet and conform to the following specifications.

- Maximum dimensions of 47 inches high x 15 inches wide x 11 inches deep
- The unit shall provide closed-loop system cooling and heating. (Heater option shall be included with the unit.)
- Unit shall be fully gasketed and maintain the NEMA 3R enclosure rating
- Shall utilize a high efficiency, convoluted, refrigerant-free, aluminum heat transfer element
- Shall operate under maximum enclosure temperature of 150°F and maximum ambient temperature of 131°F
- The unit shall dissipate a minimum of 54 Watts per °F
- Shall operate on 115 VAC, 60 Hz
- The heat exchanger shall be hard-wired to the communications cabinet power supply.
- Unit shall be UL listed

Basis of payment. This item will be paid for at the contract unit price each for COMMUNICATIONS CABINET, which price shall be payment in full for furnishing all associated equipment and labor, and installing the cabinet as shown on the plans and to the satisfaction of the Engineer. The Layer III switch, fiber optic splices and terminations, the video transmission system, if applicable, and the concrete foundation for the cabinet shall be paid for separately.

LAYER II (DATA LINK) SWITCH

This specification sets forth the minimum requirements for a layer II Ethernet switch that will transmit data from one traffic signal cabinet to another traffic signal cabinet containing a layer II switch or a layer III (Network) switch. The layer II switch shall be a Cisco Catalyst 2955 Series Intelligent Ethernet Switch, or approved equal.

The Layer II (Data Link) Switch shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

The layer II switch and its power supply shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the cabinet power, not plugged into one of the traffic signal cabinet power outlets.

Basis of Payment. This item will be paid for at the contract unit price each for LAYER II (DATA LINK) SWITCH, which price shall be payment in full for furnishing and installing the switch, and all necessary connectors, cables, fiber optic jumpers, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The VIDEO ENCODER, MEDIA CONVERTERS, and TERMINAL SERVERS shall be paid for separately.

LAYER III (NETWORK) SWITCH

This specification sets forth the minimum requirements for a layer III switch that will transmit video data from one traffic signal cabinet to another traffic signal cabinet or to another location having a layer III switch. The layer III switch shall be a Cisco Catalyst 3560 Series Intelligent Ethernet Switch, or approved equal.

The Layer III (Network) Switch shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

The layer III switch shall be mounted to the 19-inch equipment rack inside the cabinet. The layer III switch shall be plugged into the 15A power distribution unit inside the cabinet.

Basis of Payment. This item will be paid for at the contract unit price each for LAYER III (NETWORK) SWITCH, which price shall be payment in full for furnishing and installing the switch, and all necessary connectors, cables, fiber optic jumpers, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The VIDEO ENCODER, LAYER III FIBER OPTIC TRANSCEIVER MODULES, MEDIA CONVERTERS, and TERMINAL SERVERS shall be paid for separately.

FIBER OPTIC TRANSCEIVER MODULE, SFP TYPE, LONG DISTANCE

This specification sets forth the minimum requirements for a fiber optic transceiver module that plugs into a Cisco layer III gigabit ethernet switch. The module shall be a small form pluggable (SFP), long distance, single mode transceiver, Cisco GLC-LH-SM, or approved equivalent. The transceiver shall be installed in the Cisco layer III switch at the location shown on the plans.

Basis of payment. This item will be paid for at the contract unit price each for FIBER OPTIC TRANSCEIVER MODULE, SFP TYPE, LONG DISTANCE, which price shall be payment in full for furnishing and installing the module, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

FIBER OPTIC TRANSCEIVER MODULE, SFP TYPE, EXTRA LONG DISTANCE

This specification sets forth the minimum requirements for a fiber optic transceiver module that plugs into a Cisco layer III gigabit ethernet switch. The module shall be a small form pluggable (SFP), extra-long distance, single mode transceiver, Cisco GLC-ZX-SM, or approved equivalent. The transceiver shall be installed in the Cisco layer III switch at the location shown on the plans.

Basis of payment. This item will be paid for at the contract unit price each for FIBER OPTIC TRANSCEIVER MODULE, SFP TYPE, EXTRA LONG DISTANCE, which price shall be payment in full for furnishing and installing the module, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

FIBER OPTIC TRANSCEIVER MODULE, GBIC TYPE, LONG DISTANCE

This specification sets forth the minimum requirements for a fiber optic transceiver module that plugs into a Cisco layer III gigabit ethernet switch. The module shall be a Gigabit Interface Converter (GBIC) type, long distance, single mode transceiver, Cisco WS-G5486, or approved equivalent. The transceiver shall be installed in the Cisco layer III switch at the location shown on the plans. This type of transceiver module is intended for use with earlier models of Cisco layer III switches.

Basis of payment. This item will be paid for at the contract unit price each for FIBER OPTIC TRANSCEIVER MODULE, GBIC TYPE, LONG DISTANCE, which price shall be payment in full for furnishing and installing the module, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

FIBER OPTIC TRANSCEIVER MODULE, GBIC TYPE, EXTRA LONG DISTANCE

This specification sets forth the minimum requirements for a fiber optic transceiver module that plugs into a Cisco layer III gigabit Ethernet switch. The module shall be a Gigabit Interface Converter (GBIC) type, extra long distance, single mode transceiver, Cisco WS-G5487, or approved equivalent. The transceiver shall be installed in the Cisco layer III switch at the location shown on the plans. This type of transceiver module is intended for use with earlier models of Cisco layer III switches.

Basis of payment. This item will be paid for at the contract unit price each for FIBER OPTIC TRANSCEIVER MODULE, GBIC TYPE, EXTRA LONG DISTANCE, which price shall be payment in full for furnishing and installing the module, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer**.**

VIDEO ENCODER

This specification sets forth the minimum requirements for a video encoder that will transmit video data from one traffic signal cabinet to another traffic signal cabinet or to another location having a layer three switch.

The video encoder shall be an Optelecom Model C-50e MPEG-4 video encoder/decoder, or an Optelecom Model C-54e E-MC 4-channel MPEG-4 encoder, as shown on the plans, or approved equivalent. Other video encoder/decoders submitted for approval must be compatible with the Lake County Passage Advanced Traffic Management System (ATMS) software and VideoLAN VLC Media Player Release 0.8.6D or later.

The VIDEO ENCODER shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

The video encoder shall be mounted on a 16 gauge (min.) aluminum plate, and the plate shall be mounted to the cabinet side rails.

The power supply shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the cabinet power, not plugged into one of the traffic signal cabinet power outlets.

Basis of payment. This item will be paid for at the contract unit price each for VIDEO ENCODER, which price shall be payment in full for furnishing and installing the encoder, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

MEDIA CONVERTER

This specification sets forth the minimum requirements for an unmanaged Ethernet switch that performs copper-to-fiber media conversion at 10/100Mbps speeds.

The media converter shall be a Ruggedcom RMC40 Series, (Model RMC40-HI-C200) four-port, unmanaged Ethernet switch, or approved equivalent. The power supply shall be the HI voltage type (85-264VAC) and ports 3 and 4 shall be for single-mode fiber with SC connectors.

The media converter shall be mounted to either a standard DIN rail or an equipment mounting channel in the cabinet. The power supply shall be hard-wired to the traffic signal cabinet power, not plugged into one of the traffic signal cabinet power outlets. When the media converter is mounted within a communications cabinet, the power supply shall be connected to the power distribution center.

Basis of payment. This item will be paid for at the contract unit price each for MEDIA CONVERTER, which price shall be payment in full for furnishing and installing the media converter, and all necessary connectors, cables, fiber optic jumpers, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

TERMINAL SERVER

This specification sets forth the minimum requirements for a terminal server that will transmit signal controller data from one or more traffic signal controllers onto the Lake County PASSAGE Gigabit Ethernet network.

The terminal server shall be a Digi PortServer TS Hcc 4 four-port serial-to-Ethernet device, or approved equivalent, installed at the location shown on the plans. The terminal server shall be properly configured for its location within the Lake County PASSAGE Network, and for proper communication with the signal equipment being connected to it.

Basis of payment. This item will be paid for at the contract unit price each for TERMINAL SERVER, which price shall be payment in full for furnishing, installing, and configuring the terminal server, and all necessary connectors, cables, hardware, software, other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

FIBER OPTIC CABLE

Add the following to Section 871 and Section 1076.02 of the “Standard Specifications”:

This work shall consist of furnishing and installing Fiber Optical cable in conduit with all accessories and connectors. The cable shall be of the type, size, and the number of fibers specified with twelve fibers per buffer tube.

The distribution enclosure shall be a Corning Model WIC-04P Wall-Mountable Interconnect Center, or approved equivalent, capable of accommodating the required number of fibers. The distribution enclosure shall be included in the cost of the fiber optic cable, including connections to any existing cables.

All fibers being terminated shall be connected to the distribution enclosure and labeled at the connector and also at the enclosure bulkhead. The label shall include the direction and also the fiber number (e.g. S1, S2, N11, N12).

All splices and terminations on the installed fiber optic cable shall be included in the cost of the fiber optic cable. The splicing of the installed fiber optic cable to any existing fiber optic cable shall be included in the cost of this pay item.

All terminations and splices required only on existing fiber optic cable shall be paid for separately in accordance with the pay item TERMINATE FIBER IN CABINET or SPLICE FIBER IN CABINET.

The quality of the fiber optic cable, including all splices and terminations, shall be verified by testing and documentation in accordance with Article 801.13(d) of the “Standard Specifications”, to the satisfaction of the Engineer.

Multimode: The contractor shall coordinate with the equipment vendor, and shall terminate as many multimode fibers as are necessary to establish proper communications with signal controllers and/or video transmission equipment. In addition, the contractor shall terminate four unused multimode fibers and attach them to the distribution enclosure. All multimode terminations shall be ST compatible connectors with ceramic ferrules.

Singlemode: The contractor shall splice and/or terminate the number of singlemode fibers shown on the project plans, if any. Singlemode fiber terminations shall utilize pre-fabricated, factory-terminated pigtails fusion spliced to bare fibers. The pre-fabricated pigtails shall have all of their fibers color coded to match the singlemode fibers in the fiber optic cable. All fusion splices shall be secured on Corning splice trays, Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. All single-mode connectors shall be SC compatible, with ceramic ferrules.
A minimum of 13 feet of slack cable shall be provided for the controller cabinet. The controller cabinet slack cable shall be stored as directed by the Engineer.

Fiber Optic cable may be gel filled or have an approved water blocking tape.

Basis of Payment. The work shall be paid for at the contract unit price per foot for FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 24 FIBER (12 MULTIMODE AND 12 SINGLEMODE), (FIBER OPTIC CABLE IN CONDUIT, 24 SINGLEMODE) or as specified in plans for the cable in place, including distribution enclosure(s), all connectors, pigtails, splice trays, connector bulkheads, testing and documentation, and the required number of fiber splices and terminations described in the plans. Additional fiber terminations and/or splices required by the Engineer, (not included in this item), shall be paid for as TERMINATE FIBER IN CABINET and/or SPLICE FIBER IN CABINET.

TERMINATE FIBER IN CABINET

This work shall consist of terminating existing or new fibers in field cabinets or buildings as indicated on the plans or as directed by the Engineer.

All multi-mode connectors shall be ST compatible, with ceramic ferrules. Singlemode fiber terminations shall utilize pre-fabricated, factory-terminated (SC compatible) pigtails fusion spliced to bare fibers. . The pre-fabricated pigtails shall have all of their fibers color coded to match the singlemode fibers in the fiber optic cable. All fusion splices shall be secured on Corning splice trays, Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. Splice trays and connector bulkheads shall be included in the cost of TERMINATE FIBER IN CABINET, and shall not be paid for separately. Connector bulkheads shall be the proper type for the fiber enclosure at the location, and shall be properly secured to the enclosure.

The quality of all fiber splices shall be verified by testing and documentation in accordance with Article 801.13(d) of the “Standard Specifications”, to the satisfaction of the Engineer.

Basis of payment. This work shall be paid for at the contract unit price each for each fiber terminated in a field cabinet or inside a building as TERMINATE FIBER IN CABINET, which will be payment in full for terminating each required multimode or singlemode fiber, including all connectors, pigtails, splice trays, bulkheads, testing and documentation. The splicing of pigtails for singlemode fibers is included in the cost of TERMINATE FIBER IN CABINET, and shall not be paid for separately. This pay item shall not be used to pay for fiber terminations and/or splices completed to meet the requirements of FIBER OPTIC CABLE IN CONDUIT.

SPLICE FIBER IN CABINET

This work shall consist of fusion splicing singlemode fibers in a field cabinet or inside a building as indicated on the plans and as directed by the Engineer. Splices shall be secured in fiber optic splice trays within fiber optic distribution enclosures. The splice trays shall be Corning Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. Splice trays shall be included in the cost of SPLICE FIBER IN CABINET and shall not be paid for separately.

The quality of all fiber splices shall be verified by testing and documentation in accordance with Article 801.13(d) of the “Standard Specifications”, to the satisfaction of the Engineer.

All optical fibers shall be spliced to provide continuous runs. Splices shall only be allowed in equipment cabinets except where otherwise shown on the Plans.

All splices shall be made using a fusion splicer that automatically positions the fibers using a system of light injection and detection. The Contractor shall provide all equipment and consumable supplies.

Basis of payment. This work shall be paid for at the contract unit price each for SPLICE FIBER IN CABINET, which will be payment in full for all fusion splicing, fiber optic splice trays, testing and documentation, at a cabinet or building location shown on the plans and as directed by the Engineer. This pay item shall not be used to pay for fiber terminations and/or splices completed to meet the requirements of FIBER OPTIC CABLE IN CONDUIT.

FIBER OPTIC TRACER CABLE

The cable shall meet the requirements of Section 817 of the “Standard Specifications”, except for the following:

In order to trace the fiber optic cable after installation, an XLP black insulated copper cable No. 14 shall be pulled in the same conduit as the fiber optic cable. The tracer cable shall be

continuous, and extend a minimum of 3 feet into the controller cabinet. The tracer cable shall be clearly marked and identified. In order to minimize the number of splices required, the tracer cable shall incorporate maximum lengths of cable supplied by the manufacturer. Splicing of the tracer cable will be allowed at the handholes only. The tracer cable splice shall use a Western Union splice soldered with resin core flux. All exposed surfaces of the solder shall be smooth. Splices shall be soldered using a soldering iron. Blowtorches or other devices which oxidize copper cable shall not be allowed for soldering operations. The splice shall be covered with underwater grade WCSMW 30/100 heat shrink tube, minimum length four (4) inches and with a minimum one (1) inch coverage over the XLP insulation.

Basis of payment. The tracer cable shall be paid for separately as ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C per foot, which price shall include all associated labor and material for installation.

WIRELESS TRANSMISSION SYSTEM SHORT RANGE

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM SHORT RANGE includes:

- One (1) Proxim TsunamiMP.11 5054-R Subscriber unit with Integrated 23dBi Antenna (Model 5054-SUR-US) or approved equivalent.
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed as high as possible on the mast arm assembly pole. The antenna shall be directed / aimed at another antenna on the County's wireless system, (e.g. aimed at a sector antenna on a water tower), as shown on the plans and as directed by the Engineer. The power injector shall be installed inside the traffic signal cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM SHORT RANGE electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM SHORT RANGE, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the antenna to the traffic signal cabinet shall be paid for separately.

WIRELESS TRANSMISSION SYSTEM LONG RANGE

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM LONG RANGE includes:

- One (1) Proxim TsunamiMP.11 5054-R-LR Subscriber unit for extended range with Integrated 23dBi Antenna (Model 5054-SUR-LR-US) or approved equivalent.
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed as high as possible on the mast arm assembly pole. The antenna shall be directed / aimed at another antenna on the County's wireless system, (e.g. aimed at a sector antenna on a water tower), as shown on the plans and as directed by the Engineer. The power injector shall be installed inside the traffic signal cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM LONG RANGE electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM LONG RANGE, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the antenna to the traffic signal cabinet shall be paid for separately.

WIRELESS TRANSMISSION SYSTEM EXTRA LONG RANGE

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the radio, directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM EXTRA LONG RANGE includes:

- One (1) Proxim TsunamiMP.11 (Model 5054-SUA-LR-US) Subscriber unit for extended range with type N connector
- One (1) RadioWaves 28dBi Antenna (Model FP2-5-28) or approved equivalent.
- One (1) low loss RF coaxial cable, 3 foot, N to N
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed as high as possible on the mast arm assembly pole. The antenna shall be directed / aimed at another antenna on the County's wireless system, (e.g. aimed at a sector antenna on a water tower), as shown on the plans and as directed by the Engineer. The power injector shall be installed inside the traffic signal cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM EXTRA LONG RANGE electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM EXTRA LONG RANGE, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the radio to the traffic signal cabinet shall be paid for separately.

WIRELESS TRANSMISSION SYSTEM POINT TO POINT

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM POINT TO POINT includes:

- One (1) Proxim Tsunami Quick Bridge unit with Integrated 23dBi Antenna (Model QB-8150-LINK-US) or approved equivalent.
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed as high as possible on the mast arm assembly pole. The antenna shall be directed / aimed at another antenna on the County's wireless system, (e.g. aimed at corresponding antenna at other intersection), as shown on the plans and as directed by the Engineer. The power injector shall be installed inside the traffic signal cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM POINT TO POINT electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM POINT TO POINT, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the antenna to the traffic signal cabinet shall be paid for separately.

WIRELESS TRANSMISSION SYSTEM BACKHAUL

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM BACKHAUL includes:

- One (1) Proxim Tsunami licensed backhaul radio (Model **GX-800**) or approved equivalent.

- One (1) 2 foot dish antenna or other as specified on plans
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed as high as possible on the mast arm assembly pole or tower as shown on plans. The antenna shall be directed / aimed at another antenna on the County's wireless system, (e.g. aimed at corresponding antenna at other intersection / tower), as shown on the plans and as directed by the Engineer. The power injector shall be installed inside the traffic signal / grade level cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM BACKHAUL electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM BACKHAUL, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the antenna to the traffic signal cabinet shall be paid for separately.

WIRELESS TRANSMISSION SYSTEM BASE STATION

This work shall consist of the installation of a new node on the Lake County PASSAGE wireless network. This item includes the directional antenna and power injector, associated cables / wiring, and all mounting hardware.

The WIRELESS TRANSMISSION SYSTEM BASE STATION includes:

- One (1) Proxim Tsunami base station long range unit (Model 5054-BSU-R-LR) or approved equivalent.
- One (1) 60 degree sector antenna or other as shown on the plans.
- Two (2) Proxim Model 76394 surge suppressors, or approved equivalent.
- Power wiring from the radio power injector to the circuit breaker.
- All mounting hardware and poles.

All components of this item shall be installed as shown on the plans. The radio transceiver and antenna shall be installed on a new mounting pole or other as shown on the plans. The antenna shall be directed / aimed according to the azimuth settings listed in the plans and as directed by the Engineer. The power injector shall be installed inside the cabinet.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The WIRELESS TRANSMISSION SYSTEM BASE STATION electronics shall be procured from Delcan, the County's Passage engineering consultant. Delcan shall program this equipment for the appropriate location in the County's communication network.

Basis of payment. This item will be paid for at the contract unit price each for WIRELESS TRANSMISSION SYSTEM BASE STATION, which price shall be payment in full for furnishing and installing the power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer. The Outdoor Rated Network Cable from the antenna to the cabinet shall be paid for separately.

RELOCATE EXISTING VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION)

This work shall consist of the removal, storage, and relocation of an existing video detection system (complete intersection) from one traffic signal installation (temporary or permanent) to another traffic signal installation (temporary or permanent). This item shall also include the relocation of the remote-controlled video system according to the plans.

The video detection system (complete intersection) shall be removed and relocated as shown in the plans. Any damage sustained to the video detection system during removal, storage, transport, and/or reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Basis of payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION), which price shall be payment in full for disconnecting the existing video detection system, remote-controlled video system, packaging/storing it, transporting it, and relocating it to the new location complete and operating to the satisfaction of the Engineer.

RELOCATE EXISTING REMOTE-CONTROLLED VIDEO SYSTEM

This work shall consist of the removal, storage, and relocation of an existing remote-controlled video system from one traffic signal installation (temporary or permanent) to another traffic signal installation (temporary or permanent). This pay item shall be used when only the remote-controlled video system is being relocated. This pay item shall not be used when the remote-controlled video system is being relocated as part of RELOCATE EXISTING VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION).

The remote-controlled video system shall be removed and relocated as shown in the plans. Any damage sustained to the remote-controlled video system during removal, storage, transport, and/or reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

Basis of payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING REMOTE-CONTROLLED VIDEO SYSTEM, which price shall be payment in full for disconnecting the existing remote-controlled video system, packaging/storing it, transporting it, and relocating it to the new location complete and operating to the satisfaction of the Engineer.

RELOCATE EXISTING SWITCH

This work shall consist of the removal, storage, and relocation of an existing layer two or layer three switch from one traffic signal installation to another traffic signal installation.

The switch shall be removed and relocated as shown in the plans. Any damage sustained to the switch during removal, storage, transport, and/or reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

Basis of payment. This item will be paid for at the contract unit price each for RELOCATE EXISTING SWITCH, which price shall be payment in full for disconnecting the existing switch, packaging/storing it, transporting it, and relocating it to the new location complete and operating to the satisfaction of the Engineer. This item shall also include the relocation and reinstallation of the switch power supply, and all fiber optic jumper cables necessary for proper operation.

TEMPORARY TRAFFIC SIGNAL TIMING

This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the entirety of the construction project beginning with any changes to the existing traffic patterns including lane shifts or lane reductions. This shall include the period prior to the turn-on of any temporary traffic signal installation. This item can also be utilized to make temporary timing adjustments to existing traffic signals required by detours or other temporary conditions.

All timings and adjustments necessary for this work shall be performed by an approved Consultant who has previous experience in optimizing Closed Loop Traffic signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 705-4424 for a listing of approved Consultants.

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMINGS.

(a) Consultant shall attend temporary traffic signal inspection (turn-on) and/or detour meeting and conduct on-site implementation of the traffic signal timings. Make fine-turning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
(b) Consultant shall provide monthly observation of traffic signal operations in the field.
(c) Consultant shall provide on-site consultation and adjust timings as necessary for construction stage changes, temporary traffic signal phase changes, and any other conditions affecting timing and phasing, including lane closures, detours, and other construction activities.
(d) Consultant shall make timing adjustments and prepare comment responses as directed by the Area Traffic Signal Operations Engineer.

Basis of Payment. The work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL TIMING, which price shall be payment in full for performing all work described herein per intersection. When the temporary traffic signal installation is turned on, traffic control is installed, or the detour is implemented, 50 percent of the bid price will be paid. The remaining 50 percent of the bid price will be paid following the removal of the temporary traffic signal installation, traffic control and/or detour.

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM

Description. This work shall consist of re-optimizing a closed loop traffic signal system according to the following Levels of work.

LEVEL I applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system. The purpose of this work is to integrate the improvements to the subject intersection into the signal system while minimizing the impacts to

the existing system operation. This type of work would be commonly associated with the addition of signal phases, pedestrian phases, or improvements that do not affect the capacity at an intersection.

LEVEL II applies when improvements are made to an existing signalized intersection within an existing closed loop traffic signal system and detailed analysis of the intersection operation is desired by the engineer, or when a new signalized or existing signalized intersection is being added to an existing system, but optimization of the entire system is not required. The purpose of this work is to optimize the subject intersection, while integrating it into the existing signal system with limited impact to the system operations. This item also includes an evaluation of the overall system operation, including the traffic responsive program.

For the purposes of re-optimization work, an intersection shall include all traffic movements operated by the subject controller and cabinet.

After the signal improvements are completed, the signal shall be re-optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 377-7000 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

All work shall be based upon the LCDOT Countywide Synchro model. The Consultant shall contact the LCDOT at 847-377-7000 to acquire the required portion of the countywide model to be updated for the particular project. Upon completion of the project, the Consultant shall provide the LCDOT with the revised and updated files for inclusion into the Countywide Synchro Model.

The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) LEVEL I Re-Optimization

1. The following tasks are associated with LEVEL I Re-Optimization.
   a. Appropriate signal timings shall be developed for the subject intersection and existing timings shall be utilized for the rest of the intersections in the system.
   b. Proposed signal timing plan for the new or modified intersection(s) shall be forwarded to the County for review prior to implementation.
   c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection in the field to alleviate observed adverse operating conditions and to enhance operations.
   d. All patterns associated with Transit Signal Priority and Incident Response Plans are to be reviewed and adjusted as required.

2. The following deliverables shall be provided for LEVEL I Re-Optimization.
   a. Consultant shall furnish to the County a cover letter describing the extent of the re-optimization work performed.

(b) LEVEL II Re-Optimization

1. In addition to the requirements described in the LEVEL I Re-Optimization above, the following tasks are associated with LEVEL II Re-Optimization.
   a. Traffic counts shall be taken at the subject intersection after the traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit, multi-unit heavy vehicles, and transit buses.
   b. Traffic responsive program operation shall be evaluated to verify proper pattern selection and lack of oscillation and a report of the operation shall be provided to IDOT.
   c. All patterns associated with Transit Signal Priority and Incident Response Plans are to be reviewed and adjusted as required.

2. The following deliverables shall be provided for LEVEL II Re-Optimization.
   a. Consultant shall furnish to the County one (1) copy of a technical memorandum for the optimized system. The technical memorandum shall include the following elements:
      1. Brief description of the project
      2. Printed copies of the analysis output from Synchro (or other appropriate approved optimization software file)
      3. Printed copies of the traffic counts conducted at the subject intersection

   b. Consultant shall furnish to the County two (2) CDs for the optimized system. The CDs shall include the following elements:
      1. Electronic copy of the technical memorandum in PDF format
      2. Revised Synchro files (or other appropriate, approved optimization software file) including the new signal and the rest of the signals in the closed loop system or as identified by the Engineer
      3. Traffic counts conducted at the subject intersection
      4. The CD case shall include a clearly readable label displaying the same information securely affixed to the side and front.

Basis of Payment. This work shall be paid for at the contract unit price each for RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL I or RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM – LEVEL II, which price shall be payment in full for performing all work described herein per intersection. Following completion of the timings and submittal of specified deliverables, 100 percent of the bid price will be paid. Each intersection will be paid for separately.

OPTIMIZE TRAFFIC SIGNAL SYSTEM

Description. This work shall consist of optimizing a closed loop traffic signal system.

OPTIMIZE TRAFFIC SIGNAL SYSTEM applies when a new or existing closed loop traffic signal system is to be optimized and a formal Signal Coordination and Timing (SCAT) Report is to be prepared. The purpose of this work is to improve system performance by optimizing traffic signal timings, developing a time of day program and a traffic responsive program.

After the signal improvements are completed, the signal system shall be optimized as specified by an approved Consultant who has previous experience in optimizing Closed Loop Traffic

Signal Systems for District One of the Illinois Department of Transportation. The Contractor shall contact the Traffic Signal Engineer at (847) 377-7000 for a listing of approved Consultants. Traffic signal system optimization work, including fine-tuning adjustments of the optimized system, shall follow the requirements stated in the most recent IDOT District 1 SCAT Guidelines, except as note herein.

All work shall be based upon the LCDOT Countywide Synchro model. The Consultant shall contact the LCDOT at 847-377-7000 to acquire the required portion of the countywide model to be updated for the particular project. Upon completion of the project, the Consultant shall provide the LCDOT with the revised and updated files for inclusion into the Countywide Synchro Model.

The Consultant shall confer with the Traffic Signal Engineer prior to optimizing the system to determine if any extraordinary conditions exist that would affect traffic flows in the vicinity of the system, in which case, the Consultant may be instructed to wait until the conditions return to normal or to follow specific instructions regarding the optimization.

(a) The following tasks are associated with OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Appropriate signal timings and offsets shall be developed for each intersection and appropriate cycle lengths shall be developed for the closed loop signal system or as identified by Engineer.
2. All patterns associated with Transit Signal Priority and Incident Response Plans are to be developed as required.
3. Traffic counts shall be taken at all intersections after the permanent traffic signals are approved for operation by the Area Traffic Signal Operations Engineer. Manual turning movement counts shall be conducted from 6:30 a.m. to 9:30 a.m., 11:00 a.m. to 1:00 p.m., and 3:30 p.m. to 6:30 p.m. on a typical weekday from midday Monday to midday Friday. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.
4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time-of-day program shall be developed for used as a back-up system.
5. Proposed signal timing plan for the new or modified intersection shall be forwarded to the County for review prior to implementation.
6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.
7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations. These studies should utilize specialized electronic timing and measuring devices.

(b) The following deliverables shall be provided for OPTIMIZE TRAFFIC SIGNAL SYSTEM.

1. Consultant shall furnish to the County one (1) copy of a SCAT Report for the optimized system. The SCAT Report shall include the following elements:

Cover Page in color showing a System Map
Figures 1. System overview map – showing system number, system schematic map with numbered system detectors, oversaturated movements, master location, system phone number, cycle lengths, and date of completion. 2. General location map in color – showing signal system location in the metropolitan area. 3. Detail system location map in color – showing cross street names and local controller addresses. 4. Controller sequence – showing controller phase sequence diagrams.
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Tab 1: Final Report 1. Project Overview 2. System and Location Description (Project specific) 3. Methodology 4. Data Collection 5. Data Analysis and Timing Plan Development 6. Implementation a. Traffic Responsive Programming (Table of TRP vs. TOD Operation) 7. Evaluation a. Speed and Delay runs
Tab 2. Turning Movement Counts 1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)
Tab 3. Synchro Analysis 1. AM: Time-Space diagram in color, followed by intersection Synchro report (Timing report) summarizing the implemented timings. 2. Midday: same as AM 3. PM: same as AM
Tab 4: Speed, Delay Studies 1. Summary of before and after runs results in two (2) tables showing travel time and delay time. 2. Plot of the before and after runs diagram for each direction and time period.
Tab 5: Environmental Report
1. Environmental impact report including gas consumption, NO2, HCCO, improvements.
Tab 6: Electronic Files 1. Two (2) CDs for the optimized system. The CDs shall include the following elements: a. Electronic copy of the SCAT Report in PDF format b. Copies of the Synchro files for the optimized system c. Traffic counts for the optimized system d. New or updated intersection graphic display files for each of the system intersections and the system graphic display file including system detector locations and addresses.

Basis of Payment. The work shall be paid for at the contract unit each for OPTIMIZE TRAFFIC SIGNAL SYSTEM, which price shall be payment in full for performing all work described herein for the entire traffic signal system. Following the completion of traffic counts, 25 percent of the bid price will be paid. Following the completion of the Synchro analysis, 25 percent of the bid price will be paid. Following the setup and fine tuning of the timings, the speed-delay study, and the TRP programming, 25 percent of the bid price will be paid. The remaining 25 percent will be paid when the system is working to the satisfaction of the engineer and the report and CD have been submitted.

Division of Transportation

Paula J. Trigg, P.E.
Director of Transportation/County Engineer

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Libertyville, Illinois 60048-1381
Phone 847 377 7400
Fax 847 984 5888

The following Special Provisions and Supplemental Specifications approved by the State of Illinois Department of Transportation are applicable for this work and are on file in the office of the Lake County Engineer. Copies are available to prospective bidders upon request.

- Fair Employment Practices, Form LRS11, amended to conform to the latest "Equal Employment Opportunity Clause" required by the Illinois Fair Employment Practices Commission as a material form of all public contracts.

- Prevailing Wage Rates for the County of Lake

State of Illinois
Department of Transportation
Bureau of Local Roads and Streets

SPECIAL PROVISION
FOR
EMPLOYMENT PRACTICES

Effective: January 1, 1999

In addition to all other labor requirements set forth in this proposal and in the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation, during the performance of this contract, the Contractor for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

Selection of Labor. The Contractor shall comply with all Illinois statutes pertaining to the selection of labor.

Equal Employment Opportunity. During the performance of this contract, the Contractor agrees as follows:

(a) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, ancestry, age, marital status, physical or mental handicap or unfavorable discharge from military service, and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.

(b) That, if it hires additional employees in order to perform this contract or any portion hereof, it will determine the availability of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.

(c) That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, national origin, ancestry, age, martial status, physical or mental handicap or unfavorable discharge from military service.

That it will send to each labor organization or representative of workers with which it has or is bound by collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and the Department's Rules and Regulations. If any such labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with so such Act and Rules and Regulations, the Contractor will promptly so notify the Illinois Department of Human Rights and the contracting agency and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

(e) That it will submit reports as required by the Department of Human Rights Rules and Regulations, furnish all relevant information as may from time to time be requested by the Department or the contracting agency, and in all respects comply with the Illinois Human Rights Act and the Department's Rules and Regulations.

(f) That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Department's Rules and Regulations.

(g) That it will include verbatim or by reference the provisions of this clause in every subcontract so that such provisions will be binding upon every such subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by all its subcontractors; and further it will promptly notify the contracting agency and the Illinois Department of Human Rights in the event any subcontractor fails or refuses to comply therewith. In addition, the Contractor will not utilize any subcontractor declared by the subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

Lake County Prevailing Wage for July 2015

(See explanation of column headings at bottom of wages)

Trade Name	RG	TYP	C	Base	FRMAN	M-F>8	OSA	OSH	H/W	Pensn	Vac	Trng
ASBESTOS ABT-GEN		ALL		39.400	39.950	1.5	1.5	2.0	13.98	10.72	0.000	0.500
ASBESTOS ABT-MEC		BLD		36.340	38.840	1.5	1.5	2.0	11.47	10.96	0.000	0.720
BOILERMAKER		BLD		47.070	51.300	2.0	2.0	2.0	6.970	18.13	0.000	0.400
BRICK MASON		BLD		43.780	48.160	1.5	1.5	2.0	10.05	14.43	0.000	1.030
CARPENTER		ALL		44.350	46.350	1.5	1.5	2.0	11.79	16.39	0.000	0.630
CEMENT MASON		ALL		42.050	44.050	2.0	1.5	2.0	10.00	19.24	0.000	0.500
CERAMIC TILE FNSHER		BLD		36.810	0.000	1.5	1.5	2.0	10.55	9.230	0.000	0.770
COMMUNICATION TECH		BLD		35.130	37.230	1.5	1.5	2.0	11.07	11.77	0.000	0.530
ELECTRIC PWR EQMT OP		ALL		0.000	0.000	0.0	0.0	0.0	0.000	0.000	0.000	0.000
ELECTRIC PWR EQMT OP		HWY		39.220	53.290	1.5	1.5	2.0	5.000	12.17	0.000	0.390
ELECTRIC PWR GRNDMAN		ALL		30.330	53.290	1.5	1.5	2.0	5.000	9.400	0.000	0.300
ELECTRIC PWR GRNDMAN		HWY		30.330	53.290	1.5	1.5	2.0	5.000	9.400	0.000	0.300
ELECTRIC PWR LINEMAN		ALL		45.360	51.480	1.5	1.5	2.0	5.000	14.06	0.000	0.450
ELECTRIC PWR LINEMAN		HWY		46.950	53.290	1.5	1.5	2.0	5.000	14.56	0.000	0.470
ELECTRIC PWR TRK DRV		ALL		30.340	51.480	1.5	1.5	2.0	5.000	9.400	0.000	0.300
ELECTRIC PWR TRK DRV		HWY		31.400	53.290	1.5	1.5	2.0	5.000	9.730	0.000	0.310
ELECTRICIAN		BLD		39.400	43.340	1.5	1.5	2.0	13.59	15.71	0.000	0.640
ELEVATOR CONSTRUCTOR		BLD		50.800	57.150	2.0	2.0	2.0	13.57	14.21	4.060	0.600
FENCE ERECTOR		ALL		37.340	39.340	1.5	1.5	2.0	13.05	12.06	0.000	0.300
GLAZIER		BLD		40.500	42.000	1.5	2.0	2.0	13.14	16.99	0.000	0.940
HT/FROST INSULATOR		BLD		48.450	50.950	1.5	1.5	2.0	11.47	12.16	0.000	0.720
IRON WORKER		ALL		44.200	46.200	2.0	2.0	2.0	13.65	21.14	0.000	0.350
LABORER		ALL		39.200	39.950	1.5	1.5	2.0	13.98	10.72	0.000	0.500
LATHER		ALL		44.350	46.350	1.5	1.5	2.0	11.79	16.39	0.000	0.630
MACHINIST		BLD		45.350	47.850	1.5	1.5	2.0	7.260	8.950	1.850	0.000
MARBLE FINISHERS		ALL		32.400	34.320	1.5	1.5	2.0	10.05	13.75	0.000	0.620
MARBLE MASON		BLD		43.030	47.330	1.5	1.5	2.0	10.05	14.10	0.000	0.780
MATERIAL TESTER I		ALL		29.200	0.000	1.5	1.5	2.0	13.98	10.72	0.000	0.500
MATERIALS TESTER II		ALL		34.200	0.000	1.5	1.5	2.0	13.98	10.72	0.000	0.500
MILLWRIGHT		ALL		44.350	46.350	1.5	1.5	2.0	11.79	16.39	0.000	0.630
OPERATING ENGINEER		BLD	1	48.100	52.100	2.0	2.0	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		BLD	2	46.800	52.100	2.0	2.0	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		BLD	3	44.250	52.100	2.0	2.0	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		BLD	4	42.500	52.100	2.0	2.0	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		BLD	5	51.850	52.100	2.0	2.0	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		BLD	6	49.100	52.100	2.0	2.0	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		BLD	7	51.100	52.100	2.0	2.0	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		FLT	1	53.600	53.600	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER		FLT	2	52.100	53.600	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER		FLT	3	46.400	53.600	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER		FLT	4	38.550	53.600	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER		FLT	5	55.100	53.600	1.5	1.5	2.0	17.10	11.80	1.900	1.250
OPERATING ENGINEER		FLT	6	35.000	35.000	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		HWY	1	46.300	50.300	1.5	1.5	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		HWY	2	45.750	50.300	1.5	1.5	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		HWY	3	43.700	50.300	1.5	1.5	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		HWY	4	42.300	50.300	1.5	1.5	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		HWY	5	41.100	50.300	1.5	1.5	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		HWY	6	49.300	50.300	1.5	1.5	2.0	17.55	12.65	1.900	1.250
OPERATING ENGINEER		HWY	7	47.300	50.300	1.5	1.5	2.0	17.55	12.65	1.900	1.250
ORNAMNTL IRON WORKER		ALL		45.000	47.500	2.0	2.0	2.0	13.55	17.94	0.000	0.650
PAINTER		ALL		41.750	46.500	1.5	1.5	1.5	11.50	11.10	0.000	0.770
PAINTER SIGNS		BLD		33.920	38.090	1.5	1.5	1.5	2.600	2.710	0.000	0.000
PILEDRIVER		ALL		44.350	46.350	1.5	1.5	2.0	11.79	16.39	0.000	0.630
PIPEFITTER		BLD		46.000	49.000	1.5	1.5	2.0	9.000	15.85	0.000	1.780
PLASTERER		BLD		43.430	46.040	1.5	1.5	2.0	13.05	14.43	0.000	1.020
PLUMBER		BLD		46.650	48.650	1.5	1.5	2.0	13.18	11.46	0.000	0.880
ROOFER		BLD		41.000	44.000	1.5	1.5	2.0	8.280	10.54	0.000	0.530
SHEETMETAL WORKER		BLD		42.230	45.610	1.5	1.5	2.0	10.53	20.68	0.000	0.720
SIGN HANGER		BLD		31.310	33.810	1.5	1.5	2.0	4.850	3.280	0.000	0.000
SPRINKLER FITTER		BLD		49.200	51.200	1.5	1.5	2.0	11.75	9.650	0.000	0.550
STEEL ERECTOR		ALL		42.070	44.070	2.0	2.0	2.0	13.45	19.59	0.000	0.350
STONE MASON		BLD		43.780	48.160	1.5	1.5	2.0	10.05	14.43	0.000	1.030
~~SURVEY WORKER~~		->NOT IN EFFECT			ALL		37.000	37.750	1.5	1.5	2.0	12.97	9.930	0.000	0.500

TERRAZZO FINISHER	BLD		38.040	0.000	1.5	1.5	2.0	10.55	11.22	0.000	0.720
TERRAZZO MASON	BLD		41.880	44.880	1.5	1.5	2.0	10.55	12.51	0.000	0.940
TILE MASON	BLD		43.840	47.840	1.5	1.5	2.0	10.55	11.40	0.000	0.990
TRAFFIC SAFETY WRKR	HWY		32.750	34.350	1.5	1.5	2.0	6.550	6.450	0.000	0.500
TRUCK DRIVER	ALL	1	36.560	36.760	1.5	1.5	2.0	9.070	7.050	0.000	0.000
TRUCK DRIVER	ALL	2	36.000	36.400	1.5	1.5	2.0	7.200	6.000	0.000	0.150
TRUCK DRIVER	ALL	3	36.200	36.400	1.5	1.5	2.0	7.200	6.000	0.000	0.150
TRUCK DRIVER	ALL	4	36.400	36.400	1.5	1.5	2.0	7.200	6.000	0.000	0.150
TUCKPOINTER	BLD		43.800	44.800	1.5	1.5	2.0	8.280	13.49	0.000	0.670

Legend: RG (Region)
TYP (Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers)
C (Class)
Base (Base Wage Rate)
FRMAN (Foreman Rate)
M-F>8 (OT required for any hour greater than 8 worked each day, Mon through Fri.
OSA (Overtime (OT) is required for every hour worked on Saturday)
OSH (Overtime is required for every hour worked on Sunday and Holidays)
H/W (Health & Welfare Insurance)
Pensn (Pension)
Vac (Vacation)
Trng (Training)

Explanations

LAKE COUNTY

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER

The grouting, cleaning, and polishing of all classes of tile, whether for interior or exterior purposes, all burned, glazed or unglazed products; all composition materials, granite tiles, warning detectable tiles, cement tiles, epoxy composite materials, pavers, glass, mosaics, fiberglass, and all substitute materials, for tile made in tile-like units; all mixtures in tile like form of cement, metals, and other materials that are for and intended for use as a finished floor surface, stair treads, promenade roofs, walks, walls, ceilings, swimming pools, and all other places where tile is to form a finished interior or exterior. The mixing of all setting mortars including but not limited to thin-set mortars, epoxies, wall mud, and any other sand and cement mixtures or adhesives when used in the preparation, installation, repair, or maintenance of tile and/or similar materials. The handling and unloading of all sand, cement, lime, tile, fixtures, equipment, adhesives, or any other materials to be used in the preparation, installation, repair, or maintenance of tile and/or similar materials. Ceramic Tile Finishers shall fill all joints and voids regardless of method on all tile work, particularly and especially after installation of said tile work. Application of any and all protective coverings to all types of tile installations including, but not be limited to, all soap compounds, paper products, tapes, and all polyethylene coverings, plywood, masonite, cardboard, and any new type of products that may be used to protect tile installations, Blastrac equipment, and all floor scarifying equipment used in preparing floors to receive tile. The clean up and removal of all waste and materials. All demolition of existing tile floors and walls to be re-tiled.

COMMUNICATION TECHNICIAN

Low voltage construction, installation, maintenance and removal of

telecommunication facilities (voice, sound, data and video) including outside plant, telephone, security systems and data inside wire, interconnect, terminal equipment, central offices, PABX, fiber optic cable and equipment, micro waves, V-SAT, bypass, CATV, WAN (wide area network), LAN (local area networks), and ISDN (integrated system digital network), pulling of wire in raceways, but not the installation of raceways.

MARBLE FINISHER

Loading and unloading trucks, distribution of all materials (all stone, sand, etc.), stocking of floors with material, performing all rigging for heavy work, the handling of all material that may be needed for the installation of such materials, building of scaffolding, polishing if needed, patching, waxing of material if damaged, pointing up, caulking, grouting and cleaning of marble, holding water on diamond or Carborundum blade or saw for setters cutting, use of tub saw or any other saw needed for preparation of material, drilling of holes for wires that anchor material set by setters, mixing up of molding plaster for installation of material, mixing up thin set for the installation of material, mixing up of sand to cement for the installation of material and such other work as may be required in helping a Marble Setter in the handling of all material in the erection or installation of interior marble, slate, travertine, art marble, serpentine, alberene stone, blue stone, granite and other stones (meaning as to stone any foreign or domestic materials as are specified and used in building interiors and exteriors and customarily known as stone in the trade), carrara, sanionyx, vitrolite and similar opaque glass and the laying of all marble tile, terrazzo tile, slate tile and precast tile, steps, risers treads, base, or any other materials that may be used as substitutes for any of the aforementioned materials and which are used on interior and exterior which are installed in a similar manner.

MATERIAL TESTER I: Hand coring and drilling for testing of materials; field inspection of uncured concrete and asphalt.

MATERIAL TESTER II: Field inspection of welds, structural steel, fireproofing, masonry, soil, facade, reinforcing steel, formwork, cured concrete, and concrete and asphalt batch plants; adjusting proportions of bituminous mixtures.

OPERATING ENGINEER - BUILDING

Class 1. Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson Attachment; Batch Plant; Benoto (requires Two Engineers); Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Conveyor (Truck Mounted); Concrete Paver Over 27E cu. ft; Concrete Paver 27E cu. ft. and Under: Concrete Placer; Concrete Placing Boom; Concrete Pump (Truck Mounted); Concrete Tower; Cranes, All; Cranes, Hammerhead; Cranes, (GCI and similar Type); Creter Crane; Spider Crane; Crusher, Stone, etc.; Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Heavy Duty Self-Propelled Transporter or Prime Mover; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, One, Two and Three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment); Locomotives, All; Motor Patrol; Lubrication Technician; Manipulators; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes: Squeeze Cretes-Screw Type Pumps; Gypsum Bulker and Pump; Raised and Blind Hole Drill; Roto Mill Grinder; Scoops - Tractor Drawn; Slip-Form Paver; Straddle Buggies; Operation of Tie Back Machine; Tournapull; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Boilers; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, Inside Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Laser Screed; Rock Drill (Self-Propelled); Rock Drill (Truck Mounted); Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Combination Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators (remodeling or renovation work); Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Low Boys; Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 4. Bobcats and/or other Skid Steer Loaders; Oilers; and Brick Forklift.

Class 5. Assistant Craft Foreman.

Class 6. Gradall.

Class 7. Mechanics; Welders.

OPERATING ENGINEERS - HIGHWAY CONSTRUCTION

Class 1. Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Spreader; Autograder/GOMACO or other similar type machines: ABG Paver; Backhoes with Caisson Attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Tower Cranes of all types: Creter Crane: Spider Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dredges; Elevators, Outside type Rack & Pinion and Similar Machines; Formless Curb and Gutter Machine; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Truck Mounted; Hoists, One, Two and Three Drum; Heavy Duty Self-Propelled Transporter or Prime Mover; Hydraulic Backhoes; Backhoes with shear attachments up to 40' of boom reach; Lubrication Technician; Manipulators; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Rock/Track Tamper; Roto Mill Grinder; Slip-Form Paver; Snow Melters; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; Hydraulic Telescoping Form (Tunnel); Operation of Tieback Machine; Tractor Drawn Belt Loader; Tractor Drawn Belt Loader (with attached pusher - two engineers); Tractor with Boom; Tractaire with Attachments; Traffic Barrier Transfer Machine; Trenching; Truck Mounted Concrete Pump with Boom; Raised or Blind Hole Drills (Tunnel Shaft); Underground Boring and/or Mining Machines 5 ft. in diameter and over tunnel, etc; Underground Boring and/or Mining Machines under 5 ft. in diameter; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (Less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.; Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Haglund or Similar Type); Drills, All; Finishing Machine - Concrete; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; Hydro Excavating (excluding hose work); Laser Screed; All Locomotives, Dinky; Off-Road Hauling Units (including articulating) Non Self-Loading Ejection Dump; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotary Snow Plows; Rototiller, Seaman, etc., self-propelled; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper - Single/Twin Engine/Push and Pull; Scraper - Prime Mover in Tandem (Regardless of Size); Tractors pulling attachments, Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Low Boys; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than Asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper-Form-Motor Driven.

Class 4. Air Compressor; Combination - Small Equipment Operator; Directional Boring Machine; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Vacuum Trucks (excluding hose work); Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. SkidSteer Loader (all); Brick Forklifts; Oilers.

Class 6. Field Mechanics and Field Welders

Class 7. Dowell Machine with Air Compressor; Gradall and machines of like nature.

OPERATING ENGINEER - FLOATING

Class 1. Craft Foreman; Master Mechanic; Diver/Wet Tender; Engineer; Engineer (Hydraulic Dredge).

Class 2. Crane/Backhoe Operator; Boat Operator with towing endorsement; Mechanic/Welder; Assistant Engineer (Hydraulic Dredge); Leverman (Hydraulic Dredge); Diver Tender.

Class 3. Deck Equipment Operator, Machineryman, Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 lbs. or more); Tug/Launch Operator; Loader/Dozer and like equipment on Barge, Breakwater Wall, Slip/Dock, or Scow, Deck Machinery, etc.

Class 4. Deck Equipment Operator, Machineryman/Fireman (4 Equipment Units or More); Off Road Trucks; Deck Hand, Tug Engineer, Crane Maintenance (50 Ton Capacity and Under) or Backhoe Weighing (115,000 pounds or less); Assistant Tug Operator.

Class 5. Friction or Lattice Boom Cranes.

Class 6. ROV Pilot, ROV Tender

SURVEY WORKER - Operated survey equipment including data collectors, G.P.S. and robotic instruments, as well as conventional levels and transits.

TRAFFIC SAFETY - work associated with barricades, horses and drums used to reduce lane usage on highway work, the installation and removal of temporary lane markings, and the installation and removal of temporary road signs.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; Teamsters; Unskilled Dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turnatrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnatrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

TERRAZZO FINISHER

The handling of sand, cement, marble chips, and all other materials that may be used by the Mosaic Terrazzo Mechanic, and the mixing, grinding, grouting, cleaning and sealing of all Marble, Mosaic, and Terrazzo work, floors, base, stairs, and wainscoting by hand or machine, and in addition, assisting and aiding Marble, Masonic, and Terrazzo Mechanics.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

MATERIAL TESTER & MATERIAL TESTER/INSPECTOR I AND II

Notwithstanding the difference in the classification title, the classification entitled "Material Tester I" involves the same job duties as the classification entitled "Material Tester/Inspector I". Likewise, the classification entitled "Material Tester II" involves the same job duties as the classification entitled "Material Tester/Inspector II".

CHECK SHEET
FOR
RECURRING SPECIAL PROVISIONS

Adopted April 1, 2016

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

RECURRING SPECIAL PROVISIONS

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Revised 10/14/14

CHECK SHEET
FOR
LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

Adopted April 1, 2016

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS

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WORKING DAYS (BDE)

Effective: January 1, 2002

The Contractor shall complete the work within 25 working days.

80071

ERRATA FOR THE 2016 STANDARD SPECIFICATIONS (BDE)

Effective: April 1, 2016

Page 84 Article 204.02. In the seventh line of the first paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”.

Page 90 Article 205.06. In the first sentence of the third paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”.

Page 91 Article 205.06. In the first sentence of the fourth paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”, and in the second sentence change “AASHTO T 224” to “Illinois Modified AASHTO T 99 (Annex A1)”.

Page 91 Article 205.06. In the second line of the fifth paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”.

Page 91 Article 205.06. In the sixth line of the eighth paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”.

Page 148 Article 302.09. In the second sentence of the fifth paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”, and in the third sentence change “AASHTO T 99” to “Illinois Modified AASHTO T 99”.

Page 152 Article 310.09. In the second sentence of the second paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”, and in the third sentence change “AASHTO T 99” to “Illinois Modified AASHTO T 99”.

Page 155 Article 311.05(a). In the first sentence of the fifth paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”, and in the second sentence change “AASHTO T 224” to “Illinois Modified AASHTO T 99 (Annex A1)”.

Page 155 Article 311.05(a). In the second line of the sixth paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”.

Page 163 Article 351.05(a). In the second sentence of the fifth paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”, and in the third sentence change “AASHTO T 224” to “Illinois Modified AASHTO T 99 (Annex A1)”.

Page 163 Article 351.05(a). In the second line of the sixth paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”.

Page 169 Article 352.11. In the second sentence of the fourth paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”, and in the third sentence change “AASHTO T 134 (Method B)” to “Illinois Modified AASHTO T 134 (Method B)”.

Page 169 Article 352.12. In the first sentence of the first paragraph change “AASHTO T 22” to “Illinois Modified AASHTO T 22”, and in the second sentence change “AASHTO T 134 (Method B)” to “Illinois Modified AASHTO T 134 (Method B)”.

Page 196 Article 406.07(a). After the footnotes in Table 1 - Minimum Roller Requirements for HMA add the following:

“EQUIPMENT DEFINITION

V_s - Vibratory roller, static mode, minimum 125 lb/in. (2.2 kg/mm) of roller width. Maximum speed = 3 mph (5 km/h) or 264 ft/min (80 m/min). If the vibratory roller does not eliminate roller marks, its use shall be discontinued and a tandem roller, adequately ballasted to remove roller marks, shall be used.

V_D - Vibratory roller, dynamic mode, operated at a speed to produce not less than 10 impacts/ft (30 impacts/m).

P - Pneumatic-tired roller, max. speed 3 1/2 mph (5.5 km/h) or 308 ft/min (92 m/min). The pneumatic-tired roller shall have a minimum tire pressure of 80 psi (550 kPa) and shall be equipped with heat retention shields. The self-propelled pneumatic-tired roller shall develop a compression of not less than 300 lb (53 N) nor more than 500 lb (88 N) per in. (mm) of width of the tire tread in contact with the HMA surface.

T_B - Tandem roller for breakdown rolling, 8 to 12 tons (7 to 11 metric tons), 250 to 400 lb/in. (44 to 70 N/mm) of roller width, max. speed = 3 1/2 mph (5.5 km/h) or 308 ft/min (92 m/min).

T_F - Tandem roller for final rolling, 200 to 400 lb/in. (35 to 70 N/mm) of roller width with minimum roller width of 50 in. (1.25 m). Ballast shall be increased if roller marks are not eliminated. Ballast shall be decreased if the mat shoves or distorts.

3W - Three wheel roller, max. speed = 3 mph (5 km/h) or 264 ft/min (80 m/min), 300 to 400 lb/in. (53 to 70 N/mm) of roller width. The three-wheel roller shall weigh 10 to 12 tons (9 to 11 metric tons).”

Page 331 Article 505.04(p). Under Range of Clearance in the first table change “in. x 10^{-6}” to “in. x 10^{-3}”.

Page 444 Article 542.03. In the Notes in Table IIIB add “CPP Corrugated Polypropylene (CPP) pipe with smooth interior”.

Page 445 Article 542.03. In the fourth column in Table IIIB (metric) change the heading for Type 5 pipe from “CPE” to “CPP”.

Page 445 Article 542.03. In the Notes in Table IIIB (metric) change “PE Polyethylene (PE) pipe with a smooth interior” to “CPP Corrugated Polypropylene (CPP) pipe with smooth interior”.

Page 449 Article 542.04(f)(2). In the third line of the second paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”.

Page 544 Article 639.03. In the first sentence of the first paragraph change “AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, Traffic Signals,” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals,””.

Page 546 Article 640.03. In the first sentence of the first paragraph change “AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 548 Article 641.03. In the first sentence of the first paragraph change “AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaire and Traffic Signals,” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals,””.

Page 621 Article 727.03. In the first sentence of the third paragraph change “AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 629 Article 734.03(a). In the fourth line of the second paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”.

Page 649 Article 801.02. In the first sentence of the first paragraph change “AASHTO’s Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 742 Article 1003.04(c). Under Gradation in the table change “(see Article 1003.02(c))” to “(see Article 1003.01(c))”.

Page 755 Article 1004.03(b). Revise the third sentence of the first paragraph to read “For Class A (seal or cover coat), and other binder courses, the coarse aggregate shall be Class C quality or better.”.

Page 809 Article 1020.04(e). In the third line of the first paragraph change “ITP SCC-3” to “ITP SCC-4”.

Page 945 Article 1069.05. In the first sentence of the tenth paragraph change ““Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals”” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 961 Article 1070.04(b)(1). In the third sentence of the first paragraph change ““Standard Specifications of Structural Supports for Highway Signs, Luminaires and Traffic Signals” published by AASHTO” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 989 Article 1077.01. In the second sentence of the first paragraph change “Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, as published by AASHTO” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 1121 Article 1103.13(a). In the first line of the first paragraph change “Bridge Deck Approach Slabs.” to “Bridge Deck and Approach Slabs.”.

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INTENTIONALLY

BLANK

SPECIAL PROVISION
FOR
CONSTRUCTION DEBRIS

Effective October 18, 1999

Add the following to the third paragraph of Article 202.03 of the Standard Specifications:

"The Contractor shall not conduct any generation, transportation, or recycling of construction or demolition debris, clean or general or uncontaminated soil generated during construction, remodeling, repair, and demolition of utilities, structures, and roads that is not commingled with any waste, without the maintenance of documentation identifying the hauler, generator, place of origin of the debris or soil, the weight or volume of the debris or soil, and the location, owner, and operator of the facility where the debris or soil was transferred , disposed, recycled or treated. This documentation must be maintained by the Contractor for 3 years."

CONSTRUCTION DEBRIS MANIFEST

Ticket No. _____

Contract No._____

Generator _____

Hauler _____ Truck No. _____

Description of Material

_____

_____

_____

_____

_____

_____

_____

Approximate Weight of Material _____

Approximate Volume of Material _____

Disposition of Material: Location: _____

Date: _____

Time: _____

Owner: _____

Operator: _____