RETURN WITH BID

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 **DuPage**

DuPage County Division of Transportation
(Name of City, Village, Town or Road District)

FOR THE IMPROVEMENT OF

STREET NAME OR ROUTE NO. **2018-2019 Traffic Signal and Street Light**

SECTION NO. **18-TSMTC-01-GM**

TYPES OF FUNDS **Local Gas Tax**

☒ SPECIFICATIONS (required) ☒ PLANS (required)

For Municipal Projects

Submitted/Approved/Passed

☐ Mayor ☐ President of Board of Trustees ☐ Municipal Official

Date

Department of Transportation

☐ Released for bid based on limited review

Regional Engineer

Date

For County and Road District Projects

Submitted/Approved

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.

RETURN WITH BID

NOTICE TO BIDDERS

County **DuPage**
Local Public Agency **DuPage County D.O.T.**
Section Number **18-TSMTC-01-GM**
Route **Various**

Sealed proposals for the improvement described below will be received at the office of DuPage County Div of Transportation, 421 N. County Farm Road, 2nd Floor, Wheaton, IL 60187-2553 (Address) until **10:00 AM** (Time) on **August 8, 2017** (Date)

Sealed proposals will be opened and read publicly at the office of the DuPage County Division of Transportation, 421 N. County Farm Road, 2nd Floor, Wheaton, IL 60187-2553 (Address) at **10:00 AM** (Time) on **August 8, 2017** (Date)

DESCRIPTION OF WORK

Name 2018-2019 Traffic Signal and Street Light Maintenance Length: _____ feet (_____ miles)

Location Traffic signals, street lighting under the jurisdiction of DuPage County, City of Aurora, Village of Lombard, and City of Naperville.

Proposed Improvement Continuous maintenance and repair services of traffic signals, street lights, pump stations for DuPage County, City of Aurora, Village of Lombard, and the City of Naperville.

1. Plans and proposal forms will be available ~~in the office of~~ online at http://www.dupageco.org/dot/doingbusiness or by contacting the DuPage County Division of Transportation at (630) 407-6900. ~~Address~~
2. ☒ Prequalification
   If checked, the 2 low bidders must file within 24 hours after the letting an "Affidavit of Availability" (Form BC 57), in duplicate, showing all uncompleted contracts awarded to them and all low bids pending award for Federal, State, County, Municipal and private work. One original shall be filed with the Awarding Authority and one original with the IDOT District Office.
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 ~~BLR~~ Forms shall be returned by the bidder to the Awarding Authority:
   a. BLR 12200: Local Public Agency Formal Contract Proposal
   b. BLR 12200a Schedule of Prices
   c. BLR 12230: Proposal Bid Bond (if applicable)
   d. BLR 12325: Apprenticeship or Training Program Certification (**do not use for federally funded projects**)
   e. BLR 12326: Affidavit of Illinois Business Office
   f. DuPage County – Required Vendor Ethics Disclosure Statement
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.

RETURN WITH BID

PROPOSAL

County **DuPage**
Local Public Agency **DuPage County D.O.T.**
Section Number **18-TSMTC-01-GM**
Route **Various**

1. Proposal of _____

for the improvement of the above section by the construction of maintenance of traffic signals, street lighting, and pump stations.

a total distance of _____ feet, of which a distance of _____ feet, (miles) are to be improved.

2. The plans for the proposed work are those prepared by DuPage County Division of Transportation and approved by the Department of Transportation on ----------.
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 _____ working days or by **12/01/2019** 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:

County Treasurer of DuPage

The amount of the check is _____ (_____).

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 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 work shall be in accordance with the requirements of each individual proposal for the multiple bid specified in the Schedule for Multiple Bids below.

RETURN WITH BID

Illinois Department of Transportation

SCHEDULE OF PRICES

County: **DuPage**
Local Public Agency: **DuPage County DOT**
Section: **18-TSMTC-01-GM**
Route: **Various**

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
T-1	TRAFFIC SIGNAL LOCATION	EACH	13772		
T-2	TEMPORARY TRAFFIC SIGNAL LOCATION	EACH	72		
T-3	FLASHING BEACON, OVERHEAD MOUNT	EACH	240		
T-4	FLASHING BEACON, LOW MOUNT	EACH	1080		
T-5	VEHICLE COUNT STATION	EACH	24		
T-6	VIDEO COMMUNCATIONS CABINET	EACH	1		
T-7	LAYER II (DATALINK) SWITCH	EACH	30		
T-8	LAYER III (NETWORK) SWITCH	EACH	5		
T-9	REMOTE CONTROLLED VIDEO SYSTEM	EACH	24		
T-10	PEDESTRIAN CROSSING SIGNAL LOCATION	EACH	96		
T-11	FIRE STATION SIGNAL LOCATION	EACH	48		
L-1	LUMINAIRE	EACH	31728		
L-2	UNDERPASS LIGHTING	EACH	3408		
L-3	SIGN LIGHTING	EACH	24		
L-4	WASHINGTON STREET NO PARKING SIGNS SYSTEM COMPLETE	EACH	24		

RETURN WITH BID

Bidder's proposal for making entire improvements	

Item No.	Items	Unit	Quantity	Unit Price	Total
PS-1	PUMP STATION	EACH	48		
EW-1	BUDGETARY ALLOWANCE FOR EXTRA WORK	L SUM	1	230,000.00	230,000.00
KD-1	BUDGETARY ALLOWANCE FOR KNOCKDOWNS	L SUM	1	660,000.00	660,000.00
EQ-1	SIGNAL HEAD, LED, I-FACE, 1-SECTION	EACH	8		
EQ-2	SIGNAL HEAD, LED, I-FACE, 3-SECTION	EACH	24		
EQ-3	SIGNAL HEAD, LED, 1-FACE, 4-SECTION	EACH	8		
EQ-4	SIGNAL HEAD, LED, 1-FACE, 5-SECTION	EACH	24		
EQ-5	PED HEAD, LED	EACH	6		
EQ-6	PED HEAD, LED, COUNTDOWN	EACH	34		
EQ-7	AUDIBLE/ACCESSIBLE PEDESTRIAN SIGNALS (APS) (COMPLETE INTERSECTION)	EACH	5		
EQ-8	TRAFFIC SIGNAL BACKPLATE	EACH	45		
EQ-9	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	42		
EQ-10	EMERGENCY VEHICLE PREEMPTION SYSTEM	EACH	2		
EQ-11	FAC IN TYPE IV CABINET, NEMA TS-2	EACH	5		
EQ-12	INSTALL EXISTING TRAFFIC SIGNAL CABINET	EACH	6		
EQ-13	INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER	EACH	6		
EQ-14	FULL ACTUATED CONTROLLER	EACH	5		
EQ-15	INSTALL UPDATED PROM, LOCAL OR MASTER	EACH	7		
EQ-16	UPGRADE EXISTING LOCAL CONTROLLER SOFTWARE	EACH	7		
EQ-17	DETECTOR LOOP	FOOT	3900		
EQ-18	PEDESTRIAN PUSHBUTTON	EACH	50		
EQ-19	GALVANIZED STEEL CONDUIT IN GROUND, 2 INCH	FOOT	300		
EQ-20	COILABLE NON-METALLIC CONDUIT IN GROUND, 2 INCH	FOOT	600		
EQ-21	ELECTRIC CABLE IN CONDUIT, NO. 14 1/C	FOOT	750		
EQ-22	ELECTRIC CABLE IN CONDUIT, NO. 14 2/C	FOOT	1250		

RETURN WITH BID

Bidder's proposal for making entire improvements	

Item No.	Items	Unit	Quantity	Unit Price	Total
EQ-23	ELECTRIC CABLE IN CONDUIT, NO.14 3/C	FOOT	2250		
EQ-24	ELECTRIC CABLE IN CONDUIT, NO.14 5/C	FOOT	2250		
EQ-25	ELECTRIC CABLE IN CONDUIT, NO.14 7/C	FOOT	2250		
EQ-26	ELECTRIC CABLE IN CONDUIT, NO.14 2/C TW,SH	FOOT	1500		
EQ-27	ELECTRIC CABLE IN CONDUIT, NO. 6, 2/C	FOOT	750		
EQ-28	ELECTRIC CABLE IN CONDUIT, NO. 10, 2/C	FOOT	350		
EQ-29	ELECTRIC CABLE IN CONDUIT, NO. 20, 3/C, TW, SH	FOOT	750		
EQ-30	ELECTRIC CABLE IN CONDUIT, COAXIAL	FOOT	600		
EQ-31	ELECTRIC CABLE IN CONDUIT, NO.18, 3/C, VIDEO	FOOT	750		
EQ-32	ELECTRIC CABLE IN CONDUIT, COMM, NO. 16 51/2 PAIR	FOOT	200		
EQ-33	FIBER OPTIC IN CONDUIT, 12 MM, 12 SM	FOOT	2000		
EQ-34	FIBER OPTIC IN CONDUIT, 12 MM, 24 SM	FOOT	4000		
EQ-35	FIBER OPTIC IN CONDUIT, 24 SM	FOOT	2000		
EQ-36	TRANSCEIVER, FIBER OPTIC	EACH	6		
EQ-37	SERVICE INSTALLATION, POLE MOUNT	EACH	6		
EQ-38	SERVICE INSTALLATION, GROUND MOUNT	EACH	5		
EQ-39	CONCRETE FOUNDATION, TYPE A	FOOT	40		
EQ-40	CONCRETE HANDHOLE	EACH	9		
EQ-41	CONCRETE HEAVY DUTY HANDHOLE	EACH	10		
EQ-42	REBUILD EXISTING HANDHOLE	EACH	12		
EQ-43	DRILL EXISTING HANDHOLE	EACH	20		
EQ-44	ROTATE SIGNAL PHASING AT EXISTNG TS	EACH	10		
EQ-45	VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION)	EACH	4		
EQ-46	SPLICE FIBER OPTIC CABLE IN CABINET	EACH	60		
EQ-47	TERMINATE FIBER IN CABINET	EACH	60		

RETURN WITH BID

Bidder's proposal for making entire improvements	

Item No.	Items	Unit	Quantity	Unit Price	Total
EQ-48	REMOTE CONTROLLED VIDEO SYSTEM	EACH	3		
EQ-49	LED INTERNALLY ILLUMINATED STREET NAME SIGN	EACH	6		
EQ-50	UNINTERRUPTIBLE POWER SUPPLY, SPECIAL	EACH	6		
EQ-51	RELAMP EXISTING TS WITH LED	EACH	61		
EQ-52	OUTDOOR RATED NETWORK CABLE	FOOT	1000		
EQ-53	TS GROUNDING AND ELECTRICAL SERVICE UPGRADE	EACH	3		
EQ-54	MODIFY EXISTING CONTROLLER CABINET	EACH	8		
EQ-55	INSTALL TEMPORARY TRAFFIC SIGNAL	EACH	3		
EQ-56	REMOVE EXISTING TEMPORARY TRAFFIC SIGNAL	EACH	1		
EQ-57	PAINT TRAFFIC SIGNAL POST AND BASE	EACH	26		
EQ-58	PAINT MAST ARM AND POST	EACH	24		
EQ-59	PAINT COMBINATION MAST ARM AND POLE	EACH	24		
EQ-60	TRAFFIC SIGNAL POST, 10 FT	EACH	8		
EQ-61	TRAFFIC SIGNAL POST, 14 FT	EACH	10		
EQ-62	TRAFFIC SIGNAL POST, 16 FT	EACH	44		
EQ-63	TRAFFIC SIGNAL POST, 18 FT	EACH	12		
EQ-64	RELOCATE EXISTING TRAFFIC SIGNAL HEAD	EACH	50		
EQ-65	RELOCATE EXISTING PEDESTRIAN PUSHBUTTON	EACH	30		
EQ-66	BATTERY (SET), UPS	EACH	45		
EQ-67	LAYER II (DATALINK) SWITCH	EACH	7		
EQ-68	LAYER III (NETWORK) SWITCH	EACH	3		
EQ-69	RELAMP COMBINATION STREET LIGHTING - LED	EACH	14		
EQ-70	RELAMP COMBINATION SREET LIGHTING - HPS	EACH	14		
CH-1	RESIDENTIAL STREET LIGHT REPAIR, POST TOP	EACH	24		
CH-2	RESIDENTIAL STREET LIGHT REPAIR, LUMINAIRE ARM	EACH	24		

CONTRACTOR CERTIFICATIONS

County	**DuPage**
Local Public Agency	**DuPage County D.O.T.**
Section Number	**18-TSMTC-01-GM**
Route	**Various**

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.

RETURN WITH BID

County **DuPage**
Local Public Agency **DuPage County D.O.T.**
Section Number **18-TSMTC-01-GM**
Route **Various**

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

Local Agency Proposal Bid Bond

Route **Various**
County **DuPage**
Local Agency **DuPage County D.O.T.**
Section **18-TSMTC-01-GM**

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)

By: _____ (Signature and Title)

_____ (Company Name)

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

Illinois Department of Transportation

Apprenticeship or Training Program Certification

Return with Bid

Route	**Various**
County	**DuPage**
Local Agency	**DuPage County D.O.T.**
Section	**18-TSMTC-01-GM**

All contractors are required to complete the following certification:

☒ For this contract proposal or for all groups in this deliver and install proposal.

☐ For the following deliver and install groups in this material proposal:

Illinois Department of Transportation policy, adopted in accordance with the provisions of the Illinois Highway Code, requires this contract to be awarded to the lowest responsive and responsible bidder. The award decision is subject to approval by the Department. In addition to all other responsibility factors, this contract or deliver and install proposal requires all bidders and all bidders' subcontractors to disclose participation in apprenticeship or training programs that are (1) approved by and registered with the United States Department of Labor's Bureau of Apprenticeship and Training, and (2) applicable to the work of the above indicated proposals or groups. Therefore, all bidders are required to complete the following certification:

I. Except as provided in paragraph IV below, the undersigned bidder certifies that it is a participant, either as an individual or as part of a group program, in an approved apprenticeship or training program applicable to each type of work or craft that the bidder will perform with its own employees.

II. The undersigned bidder further certifies for work to be performed by subcontract that each of its subcontractors submitted for approval either (A) is, at the time of such bid, participating in an approved, applicable apprenticeship or training program; or (B) will, prior to commencement of performance of work pursuant to this contract, establish participation in an approved apprenticeship or training program applicable to the work of the subcontract.

III. The undersigned bidder, by inclusion in the list in the space below, certifies the official name of each program sponsor holding the Certificate of Registration for all of the types of work or crafts in which the bidder is a participant and that will be performed with the bidder's employees. Types of work or craft that will be subcontracted shall be included and listed as subcontract work. The list shall also indicate any type of work or craft job category for which there is no applicable apprenticeship or training program available.

IV. Except for any work identified above, any bidder or subcontractor that shall perform all or part of the work of the contract or deliver and install proposal solely by individual owners, partners or members and not by employees to whom the payment of prevailing rates of wages would be required, check the following box, and identify the owner/operator workforce and positions of ownership. ☐

_____

_____

_____

_____

_____

The requirements of this certification and disclosure are a material part of the contract, and the contractor shall require this certification provision to be included in all approved subcontracts. The bidder is responsible for making a complete report and shall make certain that each type of work or craft job category that will be utilized on the project is accounted for and listed. The Department at any time before or after award may require the production of a copy of each applicable Certificate of Registration issued by the United States Department of Labor evidencing such participation by the contractor and any or all of its subcontractors. In order to fulfill the participation requirement, it shall not be necessary that any applicable program sponsor be currently taking or that it will take applications for apprenticeship, training or employment during the performance of the work of this contract or deliver and install proposal.

Bidder: _____ By: _____
(Signature)

Address: _____ Title: _____

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Illinois Department of Transportation

Affidavit of Illinois Business Office

County **DuPage**

Local Public Agency **DuPage County D.O.T.**

Section Number **18-TSMTC-01-GM**

Route **Various**

State of _____)
) ss.
County of _____)

I, _____ (Name of Affiant) of _____ (City of Affiant), _____ (State of Affiant),

being first duly sworn upon oath, states as follows:

1. That I am the _____ (officer or position) of _____ (bidder).
2. That I have personal knowledge of the facts herein stated.
3. That, if selected under this proposal, _____ (bidder), will maintain a business office in the State of Illinois which will be located in _____ County, Illinois.
4. That this business office will serve as the primary place of employment for any persons employed in the construction contemplated by this proposal.
5. That this Affidavit is given as a requirement of state law as provided in Section 30-22(8) of the Illinois Procurement Code.

_____
(Signature)

_____
(Print Name of Affiant)

This instrument was acknowledged before me on _____ day of _____, _____.

(SEAL)

_____
(Signature of Notary Public)

Required Vendor Disclosure Statement

RETURN WITH BID

Company Name:			
Company Contact:		Contact Phone:	
Bid/Contract/ PO:	2018-2019 Traffic Signal and Street Light Maintenance; Section 18-TSMTC-01-GM		

The DuPage County Procurement Ordinance requires the following written disclosures prior to award:

1. Every contractor, union, or vendor that is seeking or has previously obtained a contract, change orders to one (1) or more contracts, or two (2) or more individual contracts with the county resulting in an aggregate amount at or in excess $25,000, shall provide to Procurement Services Division a written disclosure of all political campaign contributions made by such contractor, union, or vendor within the current and previous calendar year to any incumbent county board member, county board chairman, or countywide elected official whose office the contract to be awarded will benefit. The contractor, union or vendor shall update such disclosure annually during the term of a multi-year contract and prior to any change order or renewal requiring approval by the county board. For purposes of this disclosure requirement, "contractor or vendor" includes owners, officers, managers, lobbyists, agents, consultants, bond counsel and underwriters counsel, subcontractors and corporate entities under the control of the contracting person, and political action committees to which the contracting person has made contributions.

I have made the following campaign contributions within the current and previous calendar year:
If no contributions have been made enter "NONE" below:

Recipient	Donor	Description (e.g., cash, type of item, in-kind service, etc.)	Amount/Value	Date Made

Attach additional sheets if necessary. Sign each added sheet and number each page (#) of (total pages).

2. All contractors and vendors who have obtained or are seeking contracts with the county shall disclose the names and contact information of their lobbyists, agents and representatives and all individuals who are or will be having contact with county officers or employees in relation to the contract or bid and shall update such disclosure with any changes that may occur.

Lobbyists, Agents And Representatives And All Individuals Who Are Or Will Be Having Contact With County Officers Or Employees In Relation To The Contract Or Bid	Telephone	Email

A contractor or vendor that knowingly violates these disclosure requirements is subject to penalties which may include, but are not limited to, the immediate cancellation of the contract and possible disbarment from future county contracts.

Continuing disclosure is required, and I agree to update this disclosure form as follows:

- If information changes, within five (5) days of change, or prior to county action, whichever is sooner
- 30 days prior to the optional renewal of any contract
- Annual disclosure for multi-year contracts on the anniversary of said contract
- With any request for change order except those issued by the county for administrative adjustments.

The full text of the county's ethics and procurement policies and ordinances are available at http://www.dupageco.org/CountyBoard/Policies/

I hereby acknowledge that I have received, have read, and understand these requirements.

Authorized Signature _____

Printed Name _____

Title _____

Date _____

Failure to complete and return this form may result in delay or cancellation of the County's Contractual Obligation.

RETURN WITH BID

Required Vendor Ethics Disclosure Statement (continued)

Recipient	Donor	Description (e.g., cash, type of item, in-kind service, etc.)	Amount/Value	Date Made

Signature _____ Date _____

Instructions

Vendor Ethics Disclosure Statement

This form is filed by contract; a separate disclosure form must be filed for every contract action or informational update.

Company Name: Name under which the contract is or will be awarded.
Company Contact & Phone: Individual to be contacted if necessary
"Bid/Contract/PO/Description" identifying County reference. If an identifying County number has not been issued, include a detailed description of the services or goods to be provided including dollar amount, time frame, etc.

Section: B Contribution
Recipient: identify recipient of contribution
Donor: name under which the contribution was made, identify relationship to contractor
Description: identify the nature of the contribution
Amount/Value: monetary value of the contribution and method of valuation
Date Made: date of contribution

Authorization:
Signature, Name and Title of individual/officer/agent legally authorized to sign on behalf of the contractor.
Date: date form was completed and signed.

Definitions

Vendor Ethics Disclosure Statement

Contribution – a gift, subscription, dues, loan, advance or deposit of money or anything of value, including services, knowingly received in connection with the nomination for election or election of any person to County office.

Gift – any gratuity, discount, entertainment, hospitality, loan, forbearance, or other tangible or intangible item having a fair cash market value including but not limited to cash, food, drink.

Multi-year contracts – those contracts with a duration greater than 12 months, require annual updates, to be filed by the vendor with the user department, and forwarded to Procurement. The reporting period should be through December 31st of the current year, and received by the user department with 10 business days of that date

Prohibited Source – any person or entity who (i) is seeking official action by the Chairman, County Board member or in the case of an employee, by the employee or by the Chairman or County Board member, or another employee directing that employee; (ii) does business or seeks to do business with the Chairman, County Board member or employee (iii) conducts activities regulated by the Chairman, County Board member or employee (iv) has interests that may be substantially affected by the performance or non-performance of the official duties of the Chairman, County Board member or employee (v) is registered or required to be registered with the Secretary of State under the Lobbyist Registration Act or the DuPage County Lobbyist Registration Act, except that an entity not otherwise a prohibited source does not become a prohibited source merely because a registered lobbyist is one of its member or serves on its board of directors (vi) is a Political Action Committee to which a prohibited source has contributed.

Illinois Department of Transportation

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

Affidavit of Availability

For the Letting of 08/08/17

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)						
						$ 0.00
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 _____

_____

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701502 Traffic Control – Urban Lane Closure, 2L, 2W with Bidirectional Left Turn Lane
701601 Traffic Control – Urban Lane Closure, Multilane, 1W or 2W with Nontraversable Median
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STATE OF ILLINOIS
SPECIAL PROVISIONS

The following Special Provisions supplement the Illinois Department of Transportation (IDOT) "Standard Specifications for Road and Bridge Construction", adopted April 1, 2016, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways", the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the "Supplemental Specifications and Recurring Special Provisions" indicated on the Index Sheet included herein which apply to and govern the proposed improvement designated as Section **18-TSMTC-01-GM**. In case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

BIDDING REQUIREMENTS AND CONDITIONS FOR CONTRACT PROPOSALS
(Illinois Department of Transportation Bureau of Local Roads and Streets Special Provision for BIDDING REQUIREMENTS AND CONDITIONS FOR CONTRACT PROPOSALS LRS Check Sheet #6)

Add the following to the section **Prequalification of Bidders**: "Prequalification is required. The Certificate of Eligibility shall be accompanied by a Request for Authorization to Bid form completed by the prospective bidder. The Certificate of Eligibility and Request for Authorization to Bid shall be submitted at least one business day prior to the public opening of proposals. Authorization to bid will be issued by the DuPage County Division of Transportation to prospective bidders who are qualified to perform the work, as evidenced by the Certificate of Eligibility."

Revise the first sentence of the section **Preparation of the Proposal** to read: "Bidders shall submit their proposals on the form furnished by the Awarding Authority or on a form approved by the Awarding Authority prior to submittal of the Proposal."

Add the following to the section **Preparation of the Proposal**: "Unit prices shall only be accepted rounded to the nearest one-hundredth (0.01) of a dollar."

Add the following to the section **Public Opening of Proposals**: "Proposals will only be accepted by bidders who have been issued an authorization to bid by the DuPage County Division of Transportation. Proposals submitted without authorization to bid will be returned unopened."

SECTION 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

Article107.26 Indemnification. In addition to the requirements of this Article, for any activity occurring on an easement or any other property not owned by the Department, the indemnification shall also be extended to the property owners and any tenants thereon.

Article 107.27 Insurance. In addition to the requirements of this Article, the policies of insurance for Commercial (Comprehensive) General Liability and Commercial (comprehensive) Automobile Liability shall include an additional insured endorsement naming the County of DuPage, its officers as additional insureds. The endorsements shall be on forms acceptable to the County of DuPage. This additional insured is to be on a primary and non-contributory basis.

Employer's Liability insurance shall be in an amount not less than one million ($1,000,000.00) dollars each accident/injury and one million ($1,000,000.00) dollars each employee/disease.

Limits of Umbrella Excess Liability (over primary) shall not be less than an amount that in combination with Commercial General Liability totals $6,000,000.00 of liability insurance per occurrence. The Umbrella Excess Liability Policy shall include in the "Who is Insured" pages of the policy wording such as "Any other person or organization you have agreed in a written contract to provide additional insurance" or wording to that effect. The contractor shall provide a copy of said section of the excess/umbrella liability policy upon request by the County of DuPage.

The Contractor shall require all subcontractors to maintain the same insurance coverage required of the contractor. The County of DuPage retains the right to obtain evidence of subcontractor insurance coverage at any time.

Replace the second sentence of the second paragraph (third to last paragraph) of this article with the following: "It is the duty of the Contractor to immediately notify the County of DuPage if any insurance required under this contract has been cancelled, materially changed, or renewal has been refused, and the Contractor shall immediately suspend all work in progress and take the necessary steps to purchase, maintain and provide the required insurance coverage. If a suspension of work should occur due to insurance requirements, upon verification by the County of DuPage of the required insurance coverage, the County of DuPage shall notify the Contractor that the Contractor can proceed with the work that is a part of this contract. Failure to provide and maintain the required insurance coverage could result in the immediate cancellation of this contract, and the Contractor shall accept and bear all costs that may result from cancellation of this contract due to Contractor's failure to provide and maintain the required insurance."

Separate policies and endorsements meeting the above requirements will be required for the City of Aurora, Village of Lombard, and the City of Naperville as part of their contract award process.

SECTION 108 PROSECUTION AND PROGRESS
Article 108.03 Prosecution of the Work. Revise the first sentence of this Article to read, "The Contractor shall begin the work to be performed under the contract on December 1, 2017 at 12:00 A.M. Work shall continue for a two-year period through November 30, 2019.

SECTION 109 MEASUREMENT AND PAYMENT
Article 109.08 Acceptance and Final Payment. Prior to final payment, an affidavit from the Contractor will be required (BC 141).

SECTION 671 MOBILIZATION
Article 671.02 Basis of Payment. Revise this Article to read: "Basis of Payment. This work will not be paid for separately, but shall be included in the various items of work."

TRAFFIC CONTROL AND PROTECTION
Description. The traffic control and protection for this project shall be performed in accordance with the project Traffic Control Plan and Section 701 of the Standard Specifications as amended by the Special Provision for Work Zone Traffic Control Surveillance (Illinois Department of Transportation Check Sheet #LRS 3).

Traffic Control Plan. No work shall commence until traffic control requirements are met. Arrow Boards will be required when implementing lane closures on multi-lane roads. The following traffic control standards are the minimum requirements for traffic control for this project:

701006 Off Road Operations, 2L, 2W, 15' to 24" from Pavement Edge

701101 Off Road Operations, Multilane, 15'to 24" from Pavement Edge
701201 Lane Closure, 2L, 2W Day Only, for Speeds ≥ 45 MPH
701301 Lane Closure, 2L, 2W, Short Time Operations
701406 Lane Closure, Freeway/Expressway, Day Operations Only
701501 Urban Lane Closure, 2L, 2W, Undivided
701502 Urban Lane Closure, 2L, 2W with Bidirectional Left Turn Lane
701601 Urban Lane Closure, Multilane, 1W or 2W with Non-traversable Median
701602 Urban Lane Closure, Multilane, 2W with Bidirectional Left Turn Lane
701606 Urban Lane Closure, Multilane, 2W with Mountable Median
701701 Urban Lane Closure, Multilane Intersection
701901 Traffic Control Devices

Keeping Roads Open to Traffic:
All roads shall remain open to traffic. The Contractor may close one (through traffic) lane because of construction only between the hours of 9:00 AM and 3:00 PM. The Contractor shall maintain one-way traffic during these restricted hours on two-lane highways with the use of signs and flaggers as shown on the Traffic Control Standard. On multi-lane highways, the Contractor shall maintain at least one (through traffic) lane in each direction with the use of signs, barricades, and arrow boards as shown on the Traffic Control Standards. All lanes of traffic will be maintained between 3:00 PM and 9:00 AM and when no construction activities are being carried out.

The restricted lane closure time may be adjusted by the Agency. The Contractor shall provide a start and end time and a procedure plan 48 hours prior to the lane(s) to be closed.

If the Contractor fails to provide notification or disregards the decision by the Agency, the Traffic Control Deficiency deduction will be applied as stated in the Standard Specifications.

Basis of Payment. The cost of Traffic Control and Protection provided under the Traffic Control Plan and Section 701 - WORK ZONE TRAFFIC CONTROL will not be paid for separately, but shall be included in the cost of the items in the Contract.

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES
This work shall be according to Article 669 of the Standard Specifications and the following:

Qualifications: The term "environmental firm" shall mean an environmental firm with at least five (5) documented leaking underground storage tank (LUST) cleanups or that is pre-qualified in hazardous waste by the Department. Documentation includes but is not limited to verifying remediation and special waste operations for sites contaminated with gasoline, diesel, or waste oil in accordance with all Federal, State, or local regulatory requirements and shall be provided to the Agency for approval. The environmental firm selected shall not be a former or current consultant or have any ties with any of the properties contained within and/or adjacent to this construction project.

General: This Special Provision will likely require the Contractor to subcontract for the execution of certain activities. The environmental firm shall continuously monitor for worker protection and the Contractor shall manage any excavated soils within the construction limits of this project as fill. All excavated soils can be placed back into the excavated trench or used within the construction limits as fill. If the contaminated materials cannot be utilized within the construction limits as fill then they must be managed off-site as non-special waste. The contractor shall submit a plan for testing excavation removed from the job site. The Agency's approval of the plan must be provided prior to removal of excavated materials from the job site.

All contaminated materials shall be managed as non-special waste. This work shall include monitoring and

potential sampling, analytical testing, and management of a material contaminated by regulated substances.

ARTICLE I - DESCRIPTION OF WORK

It is the intent of the DuPage County Division of Transportation, the City of Aurora, the Village of Lombard, and the City of Naperville to jointly bid for electrical maintenance services and award these services to a single contractor ("Contractor").

Through this joint bid process, DuPage County Division of Transportation, City of Aurora, Village of Lombard, and City of Naperville are presenting an economy of scale, providing potential bidders with opportunities for increased revenues as well as reduced costs, which the bidders will in turn extend to the agencies via lower pricing. The DuPage County Division of Transportation is conducting the bidding process on behalf of all four agencies. Each agency's Board and Council will have the right to review and independently approve or reject the bid award and execute the contract for that agency.

This Contract is for the maintenance of all traffic signals, flashing beacons, streetlights, pump stations and their appurtenances under the jurisdiction or maintenance responsibility of the DuPage County Division of Transportation.

The same unit prices and contract terms shall apply to the City of Aurora, Village of Lombard, and the City of Naperville for the items under its jurisdiction and maintenance as indicated in the summary of quantities.

All contract administration, invoicing, and coordination will be the responsibility of the individual agencies. The only combined activity associated with this proposal is the bidding process being conducted by the DuPage County Division of Transportation.

The Contractor for specified unit prices listed under the Schedule of Prices shall (1) furnish labor and provide materials to maintain the respective installations and systems; (2) make permanent repairs to damaged equipment; (3) clean, repair, test, perform preventive maintenance, and overhaul specified equipment at stated intervals of time; (4) provide the necessary transportation for workers; (5) provide continuous maintenance and repair service on a 24-hour basis, 7 days a week, including holidays, to correct any malfunction of equipment or perform any temporary/emergency repairs to missing, defective, damaged, or displaced equipment resulting from any cause whatsoever in the shortest possible time; (6) locate and mark underground facilities when requested; and (7) perform all activities required and described herein.

ARTICLE II - INSTRUCTION TO BIDDERS

II-1. COMPETENCY OF BIDDERS

Each bidder shall be pre-qualified to comply with all of the requirements of Article 102.01 of the Illinois Department of Transportation Standard Specifications for Road & Bridge Construction.

II-2. EXAMINATION OF SITE OF WORK

The Contractor shall inspect in detail all of the locations to be maintained under this Contract and familiarize himself with all the local conditions affecting the Contract and the detailed requirements of maintenance. The Contractor shall be responsible for any pre-existing maintenance deficiencies that may exist at the time this Contract is awarded and his bid shall reflect these deficiencies.

II-3. AWARD AND EXECUTION OF CONTRACT

This bid will be awarded to the lowest responsive, responsible bidder meeting specifications based upon the lowest total sum.

The Agencies reserve the right to award by total bid, by single item or by any combination of items, in the best interest of the DuPage County, the City of Aurora, the Village of Lombard, and the City of Naperville.

Where unit prices are requested, the quantities stated are approximate only but will be used to determine bid award (see PREPARATION OF BIDS section).

Award and execution of Contract shall be in accordance with Section 102 of the Standard Specifications and the following special provision:

Insurance certificates shall be received by the Department within five (5) calendar days after the Contract has been received by the bidder. Contract performance and payment bond shall be received by the Department within ten (10) calendar days after the Contract has been received by the bidder.

II-4. COOPERATION WITH UTILITIES

The Contractor shall coordinate with applicable utilities according to Article 105.07 of the "Standard Specifications" and the following:

The Contractor shall be aware of the location of all utilities and structures in the project area. The Contractor shall conduct construction operations to avoid damage to the above-mentioned utilities or structures.

Should any damage to utilities occur, due to the Contractor's negligence, the Contractor shall be responsible for making all repairs, in a manner acceptable to the Agency. All costs associated with making the repairs shall be the responsibility of the Contractor.

The Contractor shall be aware of the locations of vehicle detector loops cut into the pavement. Any vehicle detector loop damaged by the Contractor's negligence shall be repaired by the Contractor in a manner acceptable to the Agency. All costs associated with making the repairs shall be the responsibility of the Contractor.

The Contractor shall notify all utility owners of the proposed construction schedule, and shall coordinate construction operations with the utility owners so that relocation of utility lines and structures may proceed in an orderly manner. Notification shall be in writing with copies transmitted to the Agency.

II-5. PROTECTION AND RESTORATION OF PROPERTY

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 Agency and shall be painted where the cut was made. Roots exposed during excavating operations shall be neatly

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 contract, and no additional compensation will be allowed.

II-6. PROTECTION OF STREAMS, LAKES, RESERVOIRS, NATURAL AREAS, WETLANDS, PRAIRIE AREAS, SAVANNAHS, AND ENDANGERED AND THREATENED SPECIES

CONCRETE WASHOUT FACILITY

To prevent pollution by residual concrete and/or the byproduct 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. 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 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 Agency 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 or designated by the Agency. 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 Agency and cleaned up immediately. The Contractor shall remove the concrete washout facility when it is no longer needed.

This work will not be paid for separately, but shall be included in the cost of the concrete work items included in the contract.

II-7. PROTECTION AND RESTORATION OF TRAFFIC SIGNS

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 Agency.

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 considered included in the cost of the contract.

ARTICLE III - GENERAL PROVISIONS AND SPECIFICATIONS

III-1. APPLICABLE SPECIFICATIONS AND STANDARDS

The latest issue of the following shall apply to the work covered by this Contract. In case of conflict with any or parts of the standards listed below the Special Provisions contained herein shall take precedence and shall govern:

National Standards and Specifications

- An Informal Guide for Roadway Lighting, published by American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., N.W., Washington, D.C. 20001
- Insulated Cable Engineers Assn. and Underwriters Laboratories publications when applicable for cable and other materials
- National Electrical Manufacturers Associations (NEMA) Standards
- American National Standards Institute, where applicable, for lamps, ballasts, and other accessories
- American Society for Testing and Materials (ASTM) Standards for materials
- All applicable manuals and policies of the Federal Highway Administration (FHWA)
- American National Standard Practice for Roadway Lighting, Published by Illuminating Society of North America, 120 Wall St., 17th Floor, New York, NY, Phone: (212) 248-5000
- National Electrical Code, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269, approved by the American National Standards Institute, Publication #ANSI/C2, published by IEEE, 345 E. 47th Street, New York, NY 10017
- National Electrical Code, NFPA - SF70-96, as published by National Fire Protection Association, Batterymarch Park, Quincy, MA 02269
- Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals AASHTO Publication
- Institute of Traffic Engineers Technical Report No. 1 (A Standard for Adjustable Face Vehicular Traffic Control Heads)
- Emergency Response Guidebook by U.S. Dept. of Transportation, latest version, for further assistance call National Response Center (NRC) 1-800-424-8802
- Hazardous Materials Regulations, Hazardous Materials Transportation Uniform Safety Act of 1990, Hazardous Materials Regulations and Motor Carrier Safety Regulating by U.S. Department of Transportation

- OSHA, all applicable regulations
- RUS, all applicable regulations
- IMSA Standards & Manuals
- Manual on Uniform Traffic Control Devices

III-2. DEFINITION OF TERMS

a. Emergency
A condition which is a hazard to the public, or is designated by the Agency to be a hazard or potential hazard of such severity that life and property are endangered. ALL emergency conditions require IMMEDIATE CORRECTIVE ACTION.

b. Equipment Damage
Any piece of equipment owned or maintained by the Department that is no longer capable of functioning as originally designed, or as since modified, or any piece of equipment that has deteriorated sufficiently in the opinion of the Agency so that failure is imminent.

c. Extra Work
Any work upon an existing system or existing installation not specified in this Contract as Routine Maintenance or as a Specialty Item. Provisions for Extra Work are covered in Article III, Section 8, of this Contract.

d. Immediate Corrective Action
When Immediate Corrective Action is required, the Contractor shall proceed to the site of the emergency by the fastest means available and, with no delay, perform all such work as may be necessary and appropriate to: 1) Ensure the safety of the public at the site of the emergency, and 2) restore to operation all of the equipment as specified under Article IV - Special Provisions.

e. Maintenance Schedule
A schedule prepared by the Agency, or prepared by the Contractor at the direction and approval of the Agency, showing starting and completion dates of work items to be performed on the various installations or systems.

f. Manual on Traffic Control
The State of Illinois Supplement to "Manual on Uniform Traffic Control Devices".

g. Routine Maintenance
Servicing the various installations, systems and equipment and performing all work necessary to keep them in proper working order, appropriate appearance, and in serviceable condition at all times. Any required equipment repair of an unforeseen nature coming to the attention of the Contractor shall also be included under the Routine Maintenance definition. The Routine Maintenance work is more fully described under Article IV - Special Provisions.

h. Standard Specifications
The Illinois Department of Transportation's "Standard Specifications for Road and Bridge Construction."

i. Week
A period of seven (7) calendar days. Any multiple of this term shall mean a corresponding multiple of seven (7) calendar days.

j. Equipment Repair

Servicing and/or restoring of any equipment to normal operating condition and appearance.

k. End of Life
The point at which equipment is no longer serviceable, repairs are not possible and the equipment must be replaced. The Agency shall have sole discretion to make this determination.

III-3. CONTROL OF WORK

a. The Contractor shall respond promptly in restoring, replacing, repairing, and realigning equipment covered in this Contract when notified by any source.

b. The Agency may prepare MAINTENANCE SCHEDULES for the prosecution of work on the various items of Routine Maintenance, Specialty Items, and/or Extra Work which are to be completed at regularly stated intervals. Refer to Article III, Section 6 of this Contract for specific requirements.

c. The Agency may require that the Contractor prepare and submit written progress reports for Routine Maintenance and/or Extra Work. When required, these reports shall include (but not be limited to) one or more of the following: 1) completed or uncompleted status of work items, 2) specific troubleshooting procedures and when they were performed, 3) any temporary repair actions taken, 4) explanation of any delays experienced by the Contractor, and/or 5) expected completion dates for each work item, based on the Agency's approval. Written reports may be required on a regular and/or periodic basis throughout the duration of the Contract.

d. The Agency may schedule status meetings with the Contractor. These meetings could be pre-determined or scheduled on an as-necessary basis. The Contractor must attend any requested meetings included in the overall contract cost, at no additional expense to the Agency.

III-4. PROSECUTION OF WORK BY THE CONTRACTOR

The purpose of this Contract is (1) to assure that all components of the traffic signal, street lighting, and pump station systems and installations operate essentially as originally installed, or as subsequently modified and (2) for preventive maintenance, to guard against and prevent equipment failures due to mechanical or electrical defects. The proper functioning of the traffic signal, street lighting and pump station systems and installations is essential to maintain the smooth, expeditious, and safe movement of people and goods. It is imperative that all of the traffic signal, street lighting and pump station equipment be serviceable and in good operating condition so as to insure maximum working efficiency and prevent unnecessary failures. When equipment failures do occur, due to unforeseen events, knockdowns, inclement weather, or from any cause whatsoever, TIME IS OF THE ESSENCE in arriving at the scene and taking corrective measures. To insure this continuous and uninterrupted operation of equipment, service calls and emergency calls shall be answered promptly, and extraordinary effort shall be exerted by the Contractor to render this service. Following is an Index to the issues covered under this section.

The items listed below shall be considered included in the cost of the Routine Maintenance portion of the Contract, and will not be paid for separately unless explicitly stated otherwise in the Contract.

a. Work Force
b. Emergency Travel Time
c. Work Priority
d. Communication Equipment
e. Contractor's Representatives
f. Pavement Closures
g. Traffic Control
h. Contractor's Facilities
i. Equipment and Materials
j. Testing Instruments
k. Contractor's Equipment
l. Work by Others
m. Emergency Temporary Repairs
n. Equipment Location and Access Responsibility
o. Repair Records
p. Utility Service Coordination
q. Cable Maintenance
r. Equipment Labels
s. Malfunction Investigation
t. Adequate Parts Inventory
u. Locks
v. Restoration of Work Area
w. Construction Safety and Health Standards

a. **Work Force**

The Contractor shall at all times provide a force of qualified personnel sufficient, in the opinion of the Agency, to perform the Routine work and specialized operations required and described herein. The force of qualified personnel shall be sufficient to simultaneously perform both Routine Maintenance and Emergency repairs, including Specialty Items and Extra Work.

It is the intent of this Contract that Department service shall take precedence over other work for third parties. The Agency may grant the Contractor authorization to postpone their work to address emergency situations, but the shortage of work force shall otherwise be insufficient grounds for the Contractor's failure to perform routine or other non-routine work within the prescribed time constraints.

The Contractor's workforce shall possess the skills and knowledge necessary to perform all work in the proper manner. The workforce shall include personnel having certain special expertise, including, but not limited to the following:

- Materials Management
- General Electrical Power
- Building Wiring (Indoor Electrician)
- Various Types of Mechanical Work
- Roadway Electrical (Outdoor Lineman)
- Telemetry/Telecommunications
- Traffic Signal Closed Loop Monitoring System
- Fiber Optic Cable Installation and Repairs
- Hardware/Software Trouble-Shooting
- Office Administration

All patrolman and field personnel working on traffic signal equipment shall be certified IMSA Traffic Signal Level II technicians.

b. **Emergency Travel Time**
The Contractor's Representative designated to respond to emergency calls shall be stationed so that their travel time to arrive at any designated point of trouble shall not exceed one hour during normal weather and under normal traffic conditions.

c. **Work Priority**
Priority in the performance of Routine Maintenance and Extra Work shall be at the discretion of the Contractor unless specifically directed otherwise by the Agency.

d. **Communication Equipment**
The Contractor shall furnish the transportation for his employees and equipment used in the performance of this Contract. All vehicles used by the Contractor shall comply with all applicable laws. All personnel shall be equipped with cellular phones for expediting and maintaining 24-hour communications with the Contractor's headquarters. A listing of cellular telephone numbers shall be prepared and furnished to the Agency one (1) week prior to the beginning of the Contract.

The Contractor shall maintain a high-speed Internet connection on a personal computer in the dispatch center. Refer to Article III-13, Reports and Forms, Paragraph g, for more information on this requirement.

e. **Contractor's Representatives**
The Contractor and subcontractors, if any, shall each designate in writing at least one responsible representative of their organizations to whom instructions may be given by the Agency. Replacements on a temporary basis that might be needed shall be provided to the Agency as necessary. The representatives designated are to be available at all times under all circumstances. These representatives are to be present at all meetings (monthly, status, etc.) as scheduled and required by the Agency.

f. **Pavement Closures**
The Contractor shall keep at least one lane of two-lane roadways, and one through lane in each direction on multi-lane highways, open to traffic unless otherwise directed by the Agency. These restrictions shall not apply when and for the time necessary to clear from the roadway damaged equipment, debris, or other objects that constitute a hazard.

g. **Traffic Control**
The Contractor shall utilize traffic control to accomplish contract work per IDOT/Agency specifications and standards.

h. **Contractor's Facilities**
The Contractor shall have and maintain adequate facilities for the timely completion of the work under this Contract. The Contractor shall have a single 24/7 phone number that will be utilized to contact the 24-hour dispatch service.

The Contractor shall maintain storage facilities and/or shops within a twenty-mile radius of the DuPage County Administration building located at 421 N. County Farm Road, Wheaton, IL 60187, in order to minimize time involved in repairing items covered under this Contract

The Contractor shall maintain, equip, and staff a facility for the testing, repairing, and overhauling of all traffic signal control equipment to be maintained under this Contract.

The repair facility staff shall include at a minimum one full time employee dedicated to the repair and testing of traffic signal equipment. This employee shall be capable of conducting the required conflict monitor/MMU testing and performing cabinet and controller troubleshooting onsite at the repair facility.

The Agency shall have the authority to visit and inspect the Contractor's facilities at any time. All storage and repair facilities shall be operational and available for inspection by November 20, 2017.

i. **Equipment and Materials**

All equipment, materials, miscellaneous items and component parts are to be furnished by the Contractor at his expense, unless otherwise specified by the Agency, and shall be the best grade of their respective kinds for the purpose. When required by these Specifications, or when called for by the Agency, full information concerning the materials or articles which the Contractor intends to incorporate into the work shall be provided for approval (this may include such submittals as the manufacturer's catalog information). The Contractor shall prepare the equipment and materials in his shop so that the Agency can easily inspect them for approval for use in the system.

Extra Work directed by the Agency shall be completed with all new materials and parts, unless otherwise specified by the Agency.

j. **Testing Instruments**

The Contractor shall provide all necessary testing instruments and related troubleshooting equipment. That portion of instrumentation for use in the performance of this Contract shall be calibrated by an approved testing laboratory once each year. The Contractor shall maintain all current certificates of calibration, and shall provide this information when requested by the Agency. This equipment shall include but not be limited to the following: Inductive Loop Analyzer, amp probe, ohm meter, volt meter, watt meter, preemption system emitter/tester, conflict monitor testers, malfunction monitoring unit tester, fiber optic testers, including OTDR, etc.

k. **Contractor's Equipment**

The Contractor shall provide at all times sufficient equipment in the opinion of the Agency to perform the routine work and specialized operations required and described herein. This equipment shall be dedicated to the work under this Contract and is in addition to the equipment required for any other work being performed by the Contractor.

l. **Work by Others**

The Contractor shall report to the Agency, by the fastest means of communication, (1) any unauthorized work being performed by others affecting the system, (2) any other work in progress which may come to his attention and which may endanger any installation of the system, and (3) any emergency and/or temporary repairs.

m. **Emergency Temporary Repairs**

The Contractor shall make emergency temporary repairs and permanent repairs to the installations. Unless specifically authorized by the Agency, permanent repairs shall be started not later than the second working day following emergency temporary repairs, and shall be

continued insofar as possible without interruption, until completion. The contractor shall assemble all equipment and parts necessary for making permanent repairs within one (1) working day following notification of damage.

n. **Equipment Location and Access Responsibility**

The Contractor shall be responsible for responding to all calls requesting location of agency maintained electrical facilities included under this Contract. Agencies may be a member of JULIE. The Contractor shall locate and mark underground cables or any other components of the system to prevent damage and facilitate work by others. For routine equipment locate requests, the Contractor shall locate and mark the appropriate equipment within forty-eight (48) hours of the request. Emergency equipment locates, when directed by the Agency, shall be performed immediately upon the Contractor's notification. If the Contractor suspects or determines that the requester does not have permission to work within the Department's Right-of-Way, the Contractor shall notify the Agency. Contractor shall provide locate documentation and/or use locate software as defined by the Agency. The cost for all equipment location services, documentation, software and associated license(s) required of the Contractor shall be included in the cost of the pay items for Routine Maintenance.

The Contractor is also required to provide access to equipment for other contractors and consultants who have approved contracts to work on the systems. The Contractor shall provide personnel to open cabinets and facilities for inspection and review of equipment. All of the work items and services included herein shall be considered included in the cost of the pay items for Routine Maintenance.

o. **Repair Records**

The Contractor shall maintain Records for each respective system's equipment as described and/or directed by the Agency, under the terms and conditions of the Contract. This work shall include keeping records of repairs and services to all serial-numbered pieces of equipment, and making them available for review by the Agency at all times.

p. **Utility Service Coordination**

The Contractor shall keep incoming power service in proper condition at all times, and shall cooperate with the appropriate utility company in this matter. The Contractor shall maintain interconnection lines owned by the Department, and shall cooperate with any utility company leasing interconnection lines to the Department. In addition, the Contractor shall perform such work at line terminals as may be required.

q. **Cable Maintenance**

All interconnecting cable, conduit and handholes between various parts of the traffic signal system shall be maintained by the Contractor. All parts of an existing cable system and appurtenances which become inoperative and/or designated for abandonment by the Agency, shall be removed by the Contractor, as directed, to the satisfaction of the Agency.

r. **Equipment Labels**

The Contractor shall maintain cabinet stickers for traffic signals, service disconnects, and street lighting controllers in readable condition at all times and replaced as required. Replacement stickers will be provided by the Department.

s. **Malfunction Investigation**

When directed by the Agency, the Contractor shall provide additional special patrols, inspections, and tests to confirm proper system equipment operation and/or collect information to isolate the cause of repetitious or intermittent system malfunctions. The times

and locations shall be specified by the Agency.

t. **Adequate Parts Inventory (Spare Components)**
The Contractor shall be responsible for providing an adequate number of spare components and equipment, and shall have them available for emergency, routine service and for overhauling replacement. At any time during the duration of this Contract, the current spare components inventory shall be provided to the Agency upon request.

In the event the Contractor fails to have or obtain the appropriate spare equipment, the Agency may deduct from the monthly billing, as liquidated damages, the amount of $500.00 per day or part of a day past the associated repair time limit.

u. **Locks**
The Contractor shall be responsible for keeping all equipment locks in proper working order at all times. Whenever the Agency deems it necessary to change, replace, remove or add locks, the Contractor shall assume the full cost for such changes. Whenever any locks are changed or added, 2 keys shall be furnished to the Agency.

v. **Restoration of Work Area**
Restoration of the traffic signal work area shall be included in the cost of 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 un-mowed fields shall be seeded, in accordance with Standard Specifications Sections 252 and 250, respectively.

w. **Construction Safety and Health Standards**
It is a condition of this Contract and shall be made a condition of each subcontract entered into pursuant to this contract that the Contractor and any Subcontractor shall not require any laborer or mechanic employed in performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous to their health or safety, as determined under OSHA Standards.

III-5. NEW INSTALLATIONS, INCREASED OR DECREASED QUANTITIES

Whenever the quantity of any item of work, as listed in the Schedule of Prices, is increased or decreased due to additions or deletions of items in the installations or systems, payment will be made on the basis of the actual work performed.

The Agency shall notify the Contractor in writing when changes are made in any installations or systems that will increase or decrease the quantities in the Schedule of Prices. This notification shall give the following information:

(1) a description of the equipment, unit or item to be added or removed, (2) the location of the equipment, unit, or item, (3) the revised totals of the respective item as shown in the Schedule of Prices, (4) effective date of the change.

In case of installation of new equipment to be added to this Contract, the Agency shall inform the Contractor of the scheduled date and time of equipment actuation. The Contractor shall make such inspection as necessary at the time of actuation to ascertain that the equipment is in proper working order. In addition, at no extra cost to the Department, the Contractor shall notify the

Agency in writing any information regarding failure of parts, guarantee periods, failure due to faulty construction, and knockdowns.

III-6. MAINTENANCE SCHEDULES

a. The Agency may present MAINTENANCE SCHEDULES to the Contractor or may require the Contractor to present proposed schedules to the Agency. Where schedules are required, the Contractor shall submit schedules a minimum of two weeks before work is to begin.

b. The Contractor shall complete all work items contained in MAINTENANCE SCHEDULES within the time period specified. Failure to complete the work items as specified, and within the designated time period, is sufficient cause for the Department to collect liquidated damages as defined herein.

c. The Contractor may request changes in a MAINTENANCE SCHEDULE by submitting proposed changes in writing to the Agency at least five (5) working days prior to the scheduled starting date of any item(s). Any such changes will become effective only upon the written approval of the Agency.

d. The Contractor shall forward a MAINTENANCE SCHEDULE Completion Report to the Agency at the completion of a Work Item, or prior to the end of the Contract, whichever occurs first.

III-7. DISRUPTION OF SERVICE - LIQUIDATED DAMAGES

The Contractor is obligated to assure that the various items of equipment in the installations and systems perform properly; whereas, maintenance operations for the respective installations and systems prescribed by this Contract must not be interrupted; whereas, MAINTENANCE SCHEDULES and completion dates are specified for various items of work and are deemed of paramount importance in the maintenance functions; whereas, failure to perform all functions in the manner specified and within any time limit specified may seriously jeopardize the welfare of the general public, the Contractor agrees that should the Contractor refuse or fail to prosecute the work, or any separable part thereof, promptly and in the manner specified in this Contract with such diligence as will insure its satisfactory completion, the Agency in his discretion may take one or more of the following actions:

(1) Withhold payment of any monthly or final remittance for any installation or system until all work has been performed to the satisfaction of the Agency; (2) Deduct a proportionate amount of money for work not performed on any installation or system, from any monthly or final remittance due the Contractor, with the amount of money deducted to be determined by the Agency; (3) By written notice to the Contractor, terminate his right to proceed with the work or such part of the work that has been delayed, in which event the Department may take over the work, prosecute the same to completion, by Contract or otherwise, and the Contractor and his sureties shall be liable to the Department for any excess expenditures occasioned by the Department; (4) Assess liquidated damages if any work covered by MAINTENANCE SCHEDULES, or any ROUTINE MAINTENANCE or other work which has a time limit specified, shall remain uncompleted after the expiration of such time limit, or after any authorized extension of such stipulated time. The Contractor expressly agrees to pay the Department the sum of Five Hundred Dollars ($500.00) for each and every Calendar Day, or part of a day, for each and every item of such work remaining uncompleted. Such monies shall be paid by the Contractor as liquidated damages to partially cover losses and expenses to the Department, and

not as a penalty.
The Department shall recover said liquidated damages by deducting the amount thereof from any monies due or that may become due the Contractor. If said monies are insufficient to cover said damages, then the Contractor or the Surety shall pay such amount due, provided, in any of the above instances, the right of the Contractor to proceed with the work was not deterred by the Department, other Contractors employed by the Department, or unforeseen causes beyond the control and without the fault or negligence of the Contractor. The Contractor shall as soon as practicable notify the Agency in writing of the cause of such delay, if any, and request of the Agency in writing such additional time or relief as he may deem necessary.

The Agency reserves all rights of contribution and indemnity.

III-8. EXTRA WORK

The Agency may authorize the Contractor to perform Extra Work and furnish the necessary materials and parts, provided that changes are not of such magnitude as to constitute a substantial or material variation in the original Contract. However, the Department reserves the right to advertise for competitive bids to effect changes on any system or installation. Authorization for Extra Work shall be given by the Agency in writing.

The completion time for Extra Work shall be 30 calendar days, unless specifically agreed to otherwise by the Agency. If the Contractor is certain that he cannot fulfill the above requirement when he is submitting his quotation for Extra Work, the quotation should contain a proposed schedule for start and finish of the work at issue. Failure to complete the work within the proposed schedule may constitute disruption of service and appropriate liquidated damages will be assessed in accordance with Article III, Section 7 of this Contract.

a. Extra work shall not include replacing or making temporary and/or permanent repairs to equipment which is damaged by traffic. Repairs of motorist caused damage or knockdowns of traffic signal heads and posts, mast arm assemblies, cabinets or any other piece of equipment shall be paid to the Contractor on a Force Account Basis in accordance with Article 109.04 (b) of the Standard Specifications.

b. The repair of equipment damaged from any cause whatsoever, other than that due to traffic, construction forces working under other agency contracts, permits, or agency personnel, shall not be paid for as Extra Work. Such work will be considered Routine Maintenance.

c. Extra work does not include the repair or replacement of equipment damaged by the fault or negligence of the Contractor.

d. Extra Work includes the replacement of failed inductive detector loops, providing the failure was not caused by negligence on the part of the Contractor. Failed inductive detector loops shall be replaced as directed by the Agency.

   Under routine conditions, the Contractor shall have thirty (30) calendar days, after notification by the Department, to complete the installation of a specified inductive detector loop. This time frame shall apply to both new and replacement detector loop installations.

Certain inductive detector loop installations may be designated by the Agency as priority items if, in the opinion of the Agency, they diminish public safety or level of service. For all such specially designated detector loop installations, the Contractor shall have ten (10) calendar days, after notification by the Department, to complete the installation of the specified inductive detector loop. Failure to complete routine or priority detector loop installations within the required time will constitute disruption of service and appropriate liquidated damages will be assessed in accordance with Article III, Section 7 of this Contract.

e. The Department reserves the right to furnish any or all of the materials or parts for Extra Work, in which case no charges for items so furnished shall be made to the Department.

f. The Department reserves the right to reject any claims for extra work which were not approved by the Agency before the work was started, for other than knockdowns or emergency repairs.

g. Extra work for items not listed on the Schedule of Prices will be paid for: (1) either at a lump sum price or at a unit price agreed upon by the Contractor and the Agency, or (2) upon a force account basis as calculated in accordance with Article 109.04 of the Standard Specifications, with the exception that no additional payments will be made for fabrication, engineering, transportation, materials ordering, or any other labor or equipment costs.

III-9. SPECIAL MAINTENANCE (LOCATIONS NOT UNDER ROUTINE MAINTENANCE)

The County is establishing agreements with various municipalities to add their signals to the County's central signal system communication network. When the municipality elects to retain maintenance responsibilities, the signal will not be transferred to County Routine Maintenance. Although these signals are not maintained by the County, the County may require the Contractor to perform maintenance and/or make repairs, according to the following:

Special maintenance requests shall be sent to the Contractor in writing (E-mail, fax, etc.) directly from the Agency, or their ~~his~~ representative.

After performing the necessary maintenance and/or repairs, the Contractor shall bill the Department in accordance with applicable Contract pay items.

It is not the intent of the Department that this item be used for the maintenance and repair of minor signal items such as lamp outages, twisted heads, pedestrian buttons, etc. The purpose of this item is to provide a mechanism to expedite repairs related to the County's signal communication network. These types of equipment and repairs may be outside the scope of work normally performed by the municipality.

III-10. REIMBURSEMENT FROM THIRD PARTY FOR REPAIRS OR DAMAGES

a. Damages by Traffic, Vandalism and Other Miscellaneous Causes
The Department reserves the right to make recovery from third party or parties for damage to any part of the installations or systems caused by vehicular traffic, vandalism, or construction forces working within the Right-of-Way, including all incidents of equipment damage for which the Department pays the Contractor to replace the damaged equipment. No part of such recovery or recoveries shall inure to the benefit of the Contractor. For each incident resulting in damage to electrical facilities, the Contractor shall furnish to the Agency an

individual statement itemizing the location and nature of damages, costs of labor, equipment and materials, the date of damage, and the date repairs were completed.

b. Damages by Construction Forces Working under Other Contracts
The Specifications for each project describe in detail the responsibility for equipment damaged by construction forces working under contract with the Department. For cases when the Electrical Maintenance Contractor is directed to perform repairs on damaged equipment, the Contractor will be paid either directly by the party who caused the damage (upon approval by the Agency) or by the use of Specialty Work Pay Items and/or Extra Work provided for under Article III, Section 8 of this Contract.

c. Equipment Damages by Department Personnel Working Within the Department Right-of-Way
Damage to equipment caused by agency personnel in the performance of their assigned duties shall be paid for by the Department as Extra Work, as provided for under Article III, Section 8 of this Contract. The Contractor shall request an inspection by the Agency of the damaged equipment at the site of the damage prior to making permanent repairs.

d. Record Keeping Requirements for Third Party Damages
The Contractor shall prepare Dispatch Room Reports for all equipment damages, whether the Contractor discovered the damage himself or was notified by others. The Contractor shall prepare Work Order Reports for each incident of damage to be repaired or replaced, for all Emergency, Temporary or Permanent Repairs made to the installations or systems. Dispatch Room Reports, Work Order Reports, and pictures of the damage shall be completed and forwarded to the Agency within 48 hours of occurrence or discovery.

III-11. METHOD OF BILLING

Billing for the cost of Routine Maintenance operations shown on invoices shall be for full monthly periods only, and shall not be prorated for shorter periods. Work performed on installations completed and activated on or before the fifteenth of the month shall be billed to cover the entire month; however, work performed on installations completed and activated after the fifteenth of the month shall not be billed on the current invoice, and payment shall begin the following month. Equipment that has been inactivated, eliminated or which the Department has relinquished maintenance responsibility after the fifteenth of the month, shall be billed for the full month. Equipment that has been inactivated eliminated or which the Department has relinquished maintenance responsibility on or before the fifteenth of the month, shall not be billed for that month. The Agency shall notify the Contractor, in writing, whenever changes are made to the Schedule of Routine Maintenance Pay Items.

Between the fifteenth (15^{th}) day and the thirtieth (30^{th}) day of each month, the Agency shall provide the Contractor, in writing, a list of the Routine Maintenance pay items and quantities for the current month. This list shall reflect the total dollar amount for each pay item, as well as the overall total dollar amount for the current month's Routine Maintenance. The Contractor shall review this list to insure that recent signal activations, maintenance transfers, equipment additions, etc. are properly indicated. If necessary, the Agency shall resubmit a corrected list to the Contractor. The Contractor shall then submit to the Agency an invoice for the dollar value shown on the list.

At the end of the Contract, the Agency may withhold the final month routine maintenance billing until all work, determined by the Agency to be the responsibility of the Contractor, is completed

to the Agency's satisfaction.

Separate invoices shall be submitted no later than thirty (30) calendar days after the completion of the work for Extra Work and for Specialty Work. Each invoice shall show the date of authorization and location of the work. Partial project billing will not be accepted unless previously authorized by the Agency.

III-12. DAMAGED PARTS, MATERIALS, AND EQUIPMENT

Surplus or damaged parts, materials, or other equipment deemed salvageable by the Agency shall be stored by the Contractor and designated as property of the Department until disposed of or repaired under the direction of the Agency. The Agency may require inside, protected storage of specified equipment.

Used parts may not be installed to repair the various systems and installations unless specifically permitted by the Routine Maintenance Special Provisions or when otherwise directed by the Agency.

III-13. REPORTS AND FORMS

The following reports, in addition to the other reports or forms listed under ARTICLE IV - SPECIAL PROVISIONS, or elsewhere in the Contract, shall be submitted when required:

a. Unsatisfactory Service Report
When, in the opinion of the Agency, any maintenance operation is not being properly performed to the satisfaction of the Agency, the Agency may submit an Unsatisfactory Service Report. The Contractor shall take necessary action in the most practical manner possible to correct the items listed in the report. A copy of the report showing the action taken and the date of such action shall be submitted to the Agency.

b. Condition Report
The Contractor shall submit to the Agency, when requested, a Condition Report showing the history of any item in the system. This report shall contain the following information or such other information as required by the Agency: (1) The general condition of the item, including the results of tests, (2) The record of any breakdown of the item, and of remedial action taken, and (3) The Contractor's recommendations for corrective measures necessary to insure the proper performance of the item.

c. Inspection Report
When the Contractor finds any item of equipment not functioning properly, he shall submit to the Agency an Inspection Report. This report shall contain a detailed description of the particular malfunction and the Contractor's detailed recommendations for corrective measures necessary to eliminate the condition.

d. Dispatch Room Report
Whenever defective, non-operative, or damaged equipment is reported to the Contractor by telephone or other means, a sequentially numbered Dispatch Room Report shall be initiated. Copies of said reports shall be provided to the Agency weekly. The Copy of the Dispatch Room Report shall show, in addition to the description of the defect, the Work Order Number which is initiated to correct the reported defect. This provision does not require a Work Order to be generated for every Dispatch Room Report. However, the Agency reserves the

right to require Work Orders for specific maintenance activities.

e. Work Order
Copies of all Work Order(s) issued to correct the defect(s) indicated on a Dispatch Room Report shall be maintained with the associated Dispatch Room Report. The copy of the Work Order(s) shall indicate the exact location of the component at fault and whether it is being bypassed, removed, replaced, or repaired temporarily or permanently. The Agency reserves the right to require copies of all Work Orders related to a specific Dispatch Room Report. When requested by the Agency, copies of Work Orders shall be provided within seven (7) days from the date of the request.

f. Weekly Traffic Signal Maintenance Report
Every Monday morning, the Contractor shall send a Weekly Traffic Signal Maintenance Report to the Agency. This report shall include location, item description, date and time notified, caller, reference number (dispatch room ticket number), date completed, and status/remarks. The report shall cover the previous 7 days, ending on Sunday. All maintenance items at agency maintained traffic signals shall appear on the report. For tracking purposes, maintenance items shall remain on the report, and subsequent reports, until the item is completed and a completion date is entered.

g. High-Speed Internet Connection with E-Mail Capability
Maintenance communication and documentation between the Department and the Contractor will be moving towards an electronic / E-Mail format. For this reason, the Contractor shall maintain a high-speed Internet connection on a personal computer in the dispatch center. The PC shall have E-Mail capability, such as Microsoft Outlook.

III-14. DURATION OF CONTRACT

This Contract shall be in full force from December 1, 2017 to November 30, 2019 following the date of execution and acceptance of the Contract, subject, however, to the right of the Department to cancel and terminate the same at any time with or without cause, or for reasons which it believes to be in the public interest by giving thirty (30) days' notice in writing to the Contractor.

In the event of such cancellation, the Contractor shall be entitled to receive payment for services and work performed and materials or equipment furnished under the terms of the Contract prior to the effective date of such cancellation, but shall not be entitled to receive any damages on account of such cancellation or any further payment whatsoever. The Department may take possession of the work and all materials, tools, and appliances thereon and thereat, for any reason that the Agency deems to be in the public interest, and his decision shall be final.

III-15. TRANSITION AND INSPECTIONS

In the event that the incumbent Contractor will not be continuing maintenance with the Agency, EMC hardware stock, owned by the Agency, will be transferred to the incoming Contractor. Transfer logistics and date will be defined by the Agency. Any work, inspection, and stock transfer done during the transition will be considered routine and will not be billable as extra work.

The incoming Contractor will accept all routine pay items, as-is, from beginning of contract term without the performance of maintenance transfer inspections by the Agency and/or existing contractor.

III-16. SPECIAL BILLING PROCEDURES (TOLLWAY WORK)

Some of the equipment and facilities for the Agency Networks may be on property belonging to the Illinois State Toll Highway Authority. Due to special access requirements, etc., the Tollway prefers to have its own contractors perform work in or around its facilities. As part of maintaining the Agency Networks, the Agency may require the Tollway and/or their contractor to install equipment perform maintenance and/or make repairs. The purpose of this item is to provide a mechanism to expedite such work and provide payment to the Tollway and/or its contractors.

When such work has been authorized by the Agency, the billing procedure shall be according to the following:

The Tollway's contractor shall submit a detailed invoice to the Contractor. The Contractor shall coordinate with the Agency to confirm that the work has been completed and accepted, and that the invoice is in accordance with the work that was authorized. The Contractor shall then approve the invoice and pay the Tollway's contractor for the work. The Contractor shall then provide a detailed bill to the Agency for reimbursement of the same amount that was paid to the Tollway contractor.

ARTICLE IV - SPECIAL PROVISIONS

TRAFFIC SIGNAL SYSTEM

The Traffic Signal System consists of electronically operated traffic control devices operated by the Department including flashing beacon installations, vehicle counting stations, traffic signal installations, and closed-loop traffic signal systems.

The traffic signal installations include, but are not limited to master and local controllers, time base coordinators, coordination units, intersection monitors/modules, modems, transceivers, detectors (induction loop, microwave, video, infrared, pedestrian-activated, or optical), controller cabinets, signal heads (vehicle and pedestrian), internally illuminated and fiber optic signs, pan/tilt/zoom cameras, video monitors, communication cabinets, battery back-up systems, traffic signal posts, mast arm assemblies and poles, electric cable (standard multi conductor, shielded multi conductor, co-axial, and fiber optic), conduit, communication lines, concrete foundations, handholes, junction boxes, utility service installations, ground rods, and other appurtances owned and/or maintained by the Department.

In all cases where the signal head is bracket mounted to a combination mast arm assembly and pole with a lighting unit, the foundation and mast arm assembly and pole shall be maintained under Routine Maintenance Pay Item T-1, TRAFFIC SIGNAL LOCATION, and the luminaire shall be maintained under Routine Maintenance Pay Item L-1, STREET LIGHTING LOCATION, where both the traffic signal installation and street lighting are maintained by the Department. At locations the Department maintains the traffic signal installation and a municipality (others) maintains the street lighting system, the foundation, mast arm assembly and pole shall be maintained under Routine Maintenance Pay Item T-1, TRAFFIC SIGNAL LOCATION, and the lighting arm, luminaire and related wiring shall be maintained by the municipality (others). In this case, Contractor shall coordinate all repair work with the municipality (others).

ITEM T - TRAFFIC SIGNAL ROUTINE MAINTENANCE

The following shall be part of Pay Items T-1 through T-11.

1. The Contractor shall maintain and repair the various installations and perform all work necessary to keep them in proper working order, to the satisfaction of the Agency, at all times. No compensation will be allowed over and above the bid prices for meeting the requirements of Routine Maintenance.

2. The Contractor shall, after proper notification, maintain of any new or existing installations which may be accepted by the Department.

3. The Contractor shall report the following to the Agency as quickly as possible:

   a) any work authorized by the Contractor being performed on the installations by anyone other than the Contractor.

   b) any work that comes to the attention of the Contractor which may endanger any installation.

   c) any emergency temporary repairs.

   d) any work of an unusual nature and/or for which the Agency has requested notification.

4. The Contractor shall respond as required (typically 48 hours for routine locates and 2 hours for emergency locates) to all calls by the Agency or other parties to locate and mark any or all underground components of an installation. The Contractor shall locate and mark said components after he has verified with the Agency that the excavator has the permission of the Department to work within the Right-of-Way.

5. The Contractor shall keep incoming power service and/or telephone service in proper working condition at all times. The Contractor shall coordinate and cooperate with the appropriate utility companies in this matter.

6. The Contractor shall patrol and inspect each installation, as directed by the Agency, and after repairs have been made, to insure said repairs were satisfactorily completed.

7. Replacement of burned out traffic signal lamps and damaged sockets shall be scheduled and accomplished in the following manner, or as directed by the Agency:

   a. If two or more traffic signal indications remain in operation for any given vehicle phase (movement) on any approach to an intersection, the replacement of the burned-out lamp or damaged socket shall be accomplished within twenty-four (24) hours for red indications and forty-eight (48) hours for all other indications. The twenty-four (24) hour and forty-eight (48) hour time periods begin immediately following discovery and/or notification of the outage.

   b. If only one traffic signal indication for any given vehicle phase (movement) remains in operation for any approach to an intersection, IMMEDIATE CORRECTIVE ACTION must be taken. This requirement includes but is not

limited to arrow indications where only one such indication is operational as well as any red flashing beacons. This requirement shall not have any exceptions.

When replacing burned out traffic signal lamps, the Contractor shall clean the reflector and lens. All replacement lamps shall meet the requirements and approval of the Agency. (See Group Relamping, Paragraph 19). These provisions shall not apply to knockdowns.

8. The Contractor shall replace burned out indicator lamps, LED and LCD displays as discovered, or when directed by the Agency.

9. The Contractor shall repair or replace all defective or damaged equipment from any cause other than traffic, construction forces working under other agency contracts, permits, or agency personnel; these items would be paid for as Extra Work. Routine Maintenance includes all visibility issues, repairs, replacement of equipment caused by adverse weather conditions, example would be removal of snow from signal lenses.

10. The Contractor shall maintain in stock at all times sufficient materials and equipment to perform temporary and permanent repairs within specified time limits.

11. The following shall be considered the minimum acceptable signal operation pending permanent repairs: Two (2) far side signal heads directed towards the through traffic movements of each approach, two (2) signal faces directed towards any separate turning movements (where they are provided) on each approach, and two (2) pedestrian signal faces for each pedestrian crossing. In addition, where the distance from any stop bar to the far side signal exceeds 150 feet, then a near right signal must also be maintained. The Contractor's response time for all traffic signal knockdowns shall be in accordance with the Repair Timetable as listed in the DuPage County Division of Transportation Traffic Signal Special Provisions contained in this Contract. When clearing a traffic signal knockdown, the Contractor shall determine if the minimum acceptable signal operations described above are present. If the minimum conditions are not present, the Contractor shall take IMMEDIATE CORRECTIVE ACTION to restore the minimum acceptable signal operations. All temporary signal faces shall contain the same type, number and size of lenses as the signal faces being replaced. The Contractor shall notify the Agency of knockdowns reported or serviced on the first business day following the knockdown. This repair work shall be considered Routine Maintenance except for damage caused by traffic, construction forces working under agency contracts, permits, or agency personnel, which will be paid for as Extra Work. When maintenance at a signalized intersection requires that the controller be disconnected, when power is available, the Contractor shall place the intersection on flashing operation, which may require the Contractor to install a flasher unit in the controller cabinet if none is provided. The signals shall flash RED for all directions unless a different indication has been directed by the Agency. The Contractor shall first place at least one STOP sign, (Illinois Standard Sign R1-1-36 x 36 or larger), on EACH approach to the intersection as a temporary means of regulating traffic, except for those approaches to which a flashing YELLOW indication has been directed by the Agency. All Contractor vehicles involved with the maintenance of traffic signals shall be equipped with a sufficient number of serviceable, reflective STOP signs, furnished by the Contractor, to be erected as specified herein. At all times, the Contractor must maintain a sufficient number of spare STOP signs for the replacement of existing STOP signs which are damaged or stolen. Municipally owned folding stop signs, authorized

by the agency, when properly placed in the open position, shall fulfill the temporary traffic control responsibilities of the Contractor in this paragraph, unless directed otherwise by the Agency. When a signalized intersection is returned to normal operation, the Contractor shall immediately re-fold and properly secure all folding STOP signs that were in use. The Contractor's use of, or dependence upon, municipal folding STOP signs shall in no way diminish the Contractor's obligations for properly equipped vehicles and adequate spare signs, as specified herein.

12. The Contractor shall replace defective or damaged equipment that is part of a specific traffic control installation. If proper signal sequencing with full vehicle detection cannot be achieved immediately, a controller which will provide the proper signal sequencing and full vehicle detection shall be installed within twenty-four (24) hours of removal of the original controller. The Contractor shall notify the Agency no later than the first business day following removal and/or replacement of any controller.

13. Controllers shall be cleaned and overhauled when the controller malfunctions, at which time it will be thoroughly bench checked at the Contractor's repair facility.

14. STOP signs (Illinois Standard R1-1- 36 x 36 or larger) shall be erected on all signalized approaches when power is not available, or if the red flashing operation is expected to be in effect for more than thirty (30) minutes after the arrival of the Contractor's personnel.

15. All permanent repairs or replacements shall be made with new equipment only, unless otherwise specifically approved by the Agency.

16. The Contractor shall check and maintain the following items as directed by the Agency:

    a. Controllers, conflict monitors, flashers, relays, detectors, time clocks, coordination equipment, telemetry equipment, cameras, and preemption equipment to insure its proper function.

    b. Align all signal posts, controller pedestals, foundations, mast arm poles, astro brackets and signal heads.

    c. Tighten all bolts.

    d. Remove the dust and debris from the interiors of controller cabinets with a brush and vacuum cleaner, and replace cabinet air filters.

    e. Replace damaged, discolored, cracked or peeling signal lenses.

    f. Replace damaged or missing nut covers, mast arm shrouds, handhole covers and handles, handhole hooks, pole handhole covers, cabinet locks, and related hardware.

    g. Clean the exterior housings of all image sensing and PTZ (pan/tilt/zoom) cameras in strict accordance with the manufacturer's recommendations, and as directed by the Agency.

    h. The Contractor shall NOT clear any logs on any devices (controller, MMU, etc.)

unless directed by the Agency.

17. **System Monitoring** – The Contractor shall maintain communication with all intersection monitor locations, closed loop signal systems, and the centralized traffic signal system software in order to monitor and receive alarm notifications regarding the operations of the count stations and traffic signal locations.

    For Dial-up, Closed Loop Signal Systems, the Contractor shall maintain a separate phone line and shall program all intersection monitor and master controller equipment to report all alarms to this number. The Contractor shall maintain a high speed internet connection for remote access to the centralized traffic signal software and shall provide a dedicated email account which shall receive all alarm notifications from the centralized traffic signal software.

    The Contractor shall have valid software license(s) for all monitoring software in use by the Agencies.

    The Contractor shall respond to all alarms from an intersection monitor, a closed loop signal system, or the centralized traffic signal software in accordance with the Repair Timetable as listed in the Special Provisions contained in this Contract.

    System monitoring shall be conducted by an IMSA Level III Traffic Signal certified staff member.

18. **Patrol Inspection** – The Contractor shall inspect all Traffic Signal Routine Maintenance Pay Items (T-1 through T-11) currently under Routine Maintenance at least once every two (2) months.

    This patrol inspection shall include checking for the proper operation of the following items: Signal heads (twisted/misaligned), Lamps/LEDs (for outages), luminaires, vehicle detection, pedestrian push-buttons, signal controller (including correct date/time), MMU (including correct date/time), battery back-up system, Emergency Vehicle Preemption System (EVPS), proper telemetry/communications, door switches, cabinet vents and fans, heat exchangers and all other specialty equipment that exists and is associated with the corresponding pay item.

    When the Contractor inspects a signalized intersection or remote controlled video system as part of a maintenance transfer inspection, it shall fulfill the requirement for that month's patrol inspection.

    Agency may request nighttime inspection(s) be performed by the Contractor as Extra Work.

    The Contractor shall prepare and maintain a list for each month's patrol inspections. For each calendar month, the list shall include all items inspected, the date inspected, the name of the patrolman, and any significant deficiencies identified and corrected. The Contractor shall provide the patrol inspection list to the Agency by the 15th day of the following month.

19. **Group Relamping** - The Contractor shall group relamp all incandescent traffic signal faces (all sections) including flashing beacons, and preemption confirmation beacons at

each year of this Contract, with the following exceptions: If the Contractor uses approved traffic signal lamps rated for minimum 16,000 hours for the first year group relamping, then the Contractor shall not be required to perform the group relamping of the traffic signals during the second year of the Contract.

Choosing the extended-life lamp option, however, does not relieve the Contractor from performing the yearly cabinet cleaning during the second year of the Contract. (Refer to Paragraph 23) The group relamping operations shall include washing all lenses and polishing all reflectors. All replacement lamps shall be manufactured in the United States of America and shall meet or exceed the following specifications:

a. 12-inch traffic signal sections: 135 watt; 1750 lumens, 6,000 hour, 3-inch light center (incandescent lamps).
b. 12-inch pedestrian signal sections: 90 watt; 1040 lumens; 8,000 hour, 3-inch light center (incandescent lamps).
c. 12-inch optically programmable sections: 150 watt; 6,000 hour. (sealed beam)
d. All other lamps shall be replaced or relamped with a lamp of similar characteristics and wattage.

All replacement lamps shall meet the approval of the Agency. Upon completion of the relamping operations, including washing the lenses and polishing the reflectors, the Contractor shall furnish to the Agency a completion report. The completion report shall indicate the location, the date relamped, and by whom. The replacement lamps shall be manually marked with the year installed. The entire intersection shall be relamped on the same working day. Old lamps shall be disposed of in accordance with the manufacturer's recommendations. The Contractor shall relamp any traffic signal installation added to this Contract out of sequence with the annual relamping program at no additional cost to the Department.

20. **Mast Arm Inspections** - The Contractor shall inspect all mast arm assemblies, mast arm poles and astro brackets (or other types of hardware) supporting traffic signal heads or pedestrian signal heads. This inspection shall be completed between April 1 and October 1 of the first year of the contract and may be performed concurrent with the group relamping, or separately. The Contractor must furnish in writing, to the Agency, a progress schedule indicating the dates on which these inspections will be completed, prior to March 15th of the each year. The inspection shall focus on the structural elements of the mast arm assembly, and must include a close-up, arms-length investigation of the following elements:

Mast Arm	Mast-to-Pole Connection	Anchor Bolts
Pole	Base Plate	Nuts

a. The arm of the assembly should be visually inspected at all signal head connections for any defects, such as cracks or buckles. The mast arm-to-pole connection should be inspected for significant loss of section, cracks in welds or base metal, and deterioration of the connection plates. The bolts of the mast arm-to-pole connection should be inspected for tightness and condition.

b. The pole should be checked for external corrosion, impact damage, perforation by rust-through, and any discernible deflection, distortion or cracking. The pole should be closely checked for corrosion near the base plate, especially if mounted

on a grout bed. The welds of the pole-to-base plate connection should be checked for cracks. The base plate should be checked for any severe section loss or deformation.

c. The anchor bolts of the mast arm should be inspected to verify that the existing nuts are not loose or missing. The anchor bolts should also be checked for any corrosion or bending.

d. Upon discovery of any buckles and/or significant structural defects (loose nuts, dents, severe corrosion, cracks in welds or structure, etc.), the Contractor shall immediately notify the Department and take corrective action as directed by the Agency to insure the assemblies do not pose an immediate hazard.

e. Upon discovery of any broken or significant defects of the supporting hardware for the traffic signal heads, the Contractor shall immediately notify the Department and take corrective action to insure that the assemblies do not pose an immediate hazard.

The Contractor's personnel must inspect the entire intersection on the same working day. The Contractor shall provide the Agency a completed form MA-1 or MA-2 (single or double mast arm assembly), "Annual Arm Inspection Report Form" for each Department maintained mast arm assembly and pole inspected.

21. **Conflict Monitor Testing** - The Contractor shall conduct conflict monitor and/or malfunction monitor unit (MMU) testing at locations designated by the Agency at one half of all traffic signal maintained locations per year. Records of the test results indicating the date, time, name of the person conducting the test, and the serial number of the unit shall be furnished to the Agency. If any part of the test fails, the unit shall be taken in for repair and a spare unit installed and tested. The testing shall be completed between April 1 and October 1 of the year.

22. **Camera Inspection and Cleaning** - The Contractor shall inspect and clean all cameras at agency-maintained traffic signals. All video detection and PTZ cameras shall be inspected for proper operation, security of connections and mounting hardware, and general condition. The Contractor shall clean all camera lenses and domes in accordance with the manufacturer's recommendations. Upon completion of this work, the Contractor shall furnish to the Agency a completion report. The completion report shall indicate the location, the date inspected and cleaned, by whom, and remarks regarding items noted during inspection. The camera inspection and cleaning shall be completed between April 1 and October 1 of each year.

23. **Annual Cabinet Cleaning** - The Contractor shall clean the interior of all traffic signal controller or remote control video cabinets at least once during each year of this Contract. Dust and debris inside the cabinets shall be removed with a brush and vacuum cleaner, and all cabinet air filters shall be replaced. Cabinet filters shall be clearly labeled with the date replaced. Upon completion of this work, the Contractor shall furnish to the Agency a completion report. The completion report shall indicate the location, the date cleaned, and by whom. The annual cabinet cleaning shall be completed by October 1 of each year.

24. **Annual UPS Inspection / Battery Testing** - The Contractor shall inspect all

uninterruptible power supply cabinets and test the batteries at least once during each year of this Contract. For each location, the Contractor shall complete an inspection report form (provided by the Agency). Batteries shall be tested and voltages documented. Weak batteries and unserviceable equipment shall be replaced by the Contractor.

25. The Contractor shall keep records of repairs and services to all serial numbered pieces of equipment and furnish them to the Agency upon request. These records must indicate the location, the malfunction, and removal and reinstallation dates of each item. The records should also indicate the serial number of the spare piece of equipment if such item is installed.

26. The Contractor shall maintain all components of the emergency vehicle preemption system (EVPS) at applicable intersections to the satisfaction of the Agency. This work includes repairing or replacing defective components so as to restore the preemption system to complete working order within 72 hours of problem notification. The Contractor shall notify the local fire district and the Agency whenever the EVPS is inoperative or any component of the EVPS is removed for service. As part of maintaining the emergency vehicle preemption system the Contractor will be required to clean the optical detector lenses and/or adjust the sensitivity of the phase selector as directed by the Agency**.**

27. The Contractor is responsible for removing posters and graffiti from all components of the traffic signal installations and to repaint as directed by the Agency.

28. The Contractor shall not make any timing or programming changes on any closed-loop system or its components except through qualified electrical technicians and with the approval of the Agency.

29. The Contractor is responsible for the removal and installation of the existing traffic signal controller and to cover and uncover the traffic signal heads at locations where the traffic signal installation is seasonal, as directed by the Agency.

30. The Contractor shall furnish a qualified representative to perform inspections during all agency traffic signal maintenance transfers. The following two types of maintenance transfers may occur: (1) A new or existing traffic signal installation will be added to the Contract, or (2) an existing traffic signal installation will have its maintenance transferred from the Contract to another agency or contractor. All costs associated with these inspections shall be included in the cost of routine traffic signal maintenance. This item may include high mount and/or low mount flashing beacon installations.

    a. The Contractor shall analyze all detector loops at the controller cabinet insuring that each detector loop, or set of detector loops, complies with Section 886 of the Standard Specifications.

    b. The Contractor shall analyze the controller program provided by the controller manufacturer to insure that the phase and overlap designations are provided correctly in the controller program, as indicated on the traffic signal sequence drawing and cabinet wiring drawings.

    c. The Contractor shall insure that the phase timings in the traffic signal controller

are those provided by the Agency.

d. The Contractor shall assist in placing the traffic signal in operation by observing the signal display and the conflict monitor or MMU operations. The Contractor shall report any operational discrepancies or signal outages to the Agency immediately.

e. The Contractor shall assist the Agency in walking all approaches of the signal installation, and inspecting all traffic signal items for conformance with the DuPage County Division of Transportation specifications for the project. The Contractor shall also assist the Agency in inspecting all of the traffic signal heads for proper aiming.

f. The Contractor shall assist in the testing and/or adjusting of emergency vehicle pre-emption equipment. The Contractor shall insure that whenever railroad pre-emption and emergency vehicle pre-emption are in operation simultaneously, that the railroad pre-emption has priority over emergency vehicle pre-emption.

g. The Contractor shall insure that locations containing railroad preemption are programmed in accordance with the approved railroad preemption program, and that all special lock-out devices are operating properly.

h. The Contractor is required to attend and assist at any inspection or testing of the railroad-interconnected traffic signals as scheduled by the Agency, the Illinois Commerce Commission, and/or the Illinois Department of Transportation.

31. Special Tasks Required by the Agency - The Contractor shall be responsible for completing special tasks as directed by the Agency. These special tasks will be associated with the maintenance and operation of the traffic signal system. The following is a representative list of special tasks the Contractor may be required to complete. This list contains examples of special tasks that may be required, however, it should not be considered all-inclusive or comprehensive in any way.

    a. Inspect the timing operation of a signalized intersection at a specific time period and provide a recommendation for improving traffic flow.
    b. Program timing parameter changes that have been approved by the Agency.
    c. Determine the phasing or operation of a signalized intersection.
    d. Check the condition or verify the presence of equipment at a signalized location.
    e. Provide a copy of timing parameters in use at a signalized location.
    f. Provide recommendations to improve the safety or operation of a signalized location.
    g. Provide a compiled list of all locations meeting a specified criteria.

    All costs relating to completing special tasks such as these shall be considered included in cost of routine traffic signal maintenance and no additional compensation shall be allowed.

32. Unless specifically stated to the contrary, all items shall be repaired within a time frame more specifically described in the Repair Timetable listed in the DDOT Traffic Signal Special Provisions contained in this Contract. This table is not to be used in place of routine maintenance schedules. 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. The Repair Timetable shall be subject to revision at any time, at the discretion of the Agency.

The Contractor shall respond to all notifications of Traffic Signal System malfunctions in a reasonable time. In addition to the daily routine and non-routine requirements of the Traffic Signal System, 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 each response, from the time of the initial report to the time of final permanent repair.

In the event the Contractor fails to meet the required times for response, service restoration, and/or permanent repairs as listed in the Repair Timetable, the Agency may deduct liquidated damages from the monthly billing in the following amounts:

a. Response Time – Fifty dollars ($50.00)/hour for each hour or part of an hour past the response time limit.

b. Service Restoration – One hundred dollars ($100.00)/hour for each hour or part of an hour past the service restoration time limit.

c. Permanent Repairs – Five hundred dollars ($500.00)/day for each day or part of a day past the permanent repair time limit.

The above liquidated damages shall not limit the Agency from withholding additional monies from the monthly billing if, in the opinion of the Agency, proper service to the traffic signal system is seriously deficient.

32. The Contractor shall be responsible for clearing snow and ice from LED signal indications in compliance with the Repair Timetable for a signal outage. Two clearly visible signal indications of all colors and arrows are required to be maintained at all times.

33. The Contractor shall clean all lenses and reflectors at incandescent locations and all LED signal indications at least once each year between April and October. If the indication is cleaned as part of the Group Relamping (Paragraph 19) or under Extra Work pay item for relamping LED indications, this shall satisfy the annual cleaning requirement of the signal indication.

ITEMS T-1 through T-11 - TRAFFIC SIGNAL ROUTINE MAINTENANCE PAY ITEMS

T-1 TRAFFIC SIGNAL LOCATION

This item shall consist of maintaining a traffic signal location, either as part of a coordinated signal system (could be operated under adaptive signal control and/or traffic responsive programs) or an isolated signalized intersection. This item may include, but shall not be limited to, any number or type of the following:

- Traffic signal heads, (incandescent and LED), programmable signal heads, traffic signal posts, mast arms, combination mast arms, brackets, and foundations. The traffic signal heads

shall consist of signal sections, back plates, louvers, and/or visors.

- Pedestrian signal heads, (incandescent and LED), audible/accessible and countdown pedestrian signals, pedestrian-actuated detectors (e.g. push buttons), and associated signs.

- A full-actuated controller, solid-state type, with volume-density features, railroad and/or emergency vehicle preemption, and time-base coordination. A controller cabinet with its associated equipment, system communications equipment, modems, switching units, intersection coordinators, time switches and, where applicable, control pedestal and foundation. Intersection monitoring devices, where applicable, shall be maintained.

- Inductive detector loops, magnetic detectors, image sensing (video) detectors, micro loops, preformed detector loops, and microwave detectors. Communication for video detection systems, including transmitters, receivers, modems, and other miscellaneous communication equipment, regardless of its location in the system, shall be included under this pay item

- A remote-controlled video system for monitoring traffic flow and road/pavement conditions. The video system shall include remote pan/tilt/zoom (PTZ) cameras mounted on poles and/or mast arms, camera housings, all necessary mounting hardware, conduits, cables, connectors and related equipment. In addition, communication for the remote video system, including image digitizer (processor), video/data transmitters and receivers, modems, and other miscellaneous communication equipment, regardless of its location in the system.

- Emergency Vehicle Preemption System (EVPS) including optical heads, discriminator card / amplifier, confirmation beacons, and associated wiring.

- Terminal Servers, which are used to connect multiple traffic signal controllers to the Central Signal System Network. The terminal servers currently in use by the County are the Digi PortServer TS with up to 4 ports.

- Battery Back-Up systems. The system is comprised of the UPS or Inverter unit, bypass switch, batteries, cabinet, and related wiring harnesses.

- Illuminated signs. The signs may be street name signs and/or regulatory signs. The illumination shall be accomplished by incandescent lamps, fluorescent lamps, neon tubes, LEDs or fiber optics.

- Traffic signal conduit and interconnect conduit. The conduit may be in the ground or attached to structure.

- Traffic signal communications equipment including copper, fiber optic, or radio links.

- Traffic signal handholes and interconnect handholes, including broken and/or missing handhole lids.

- Traffic signal cable and interconnect cable including copper wire and fiber optic.

- Electrical and telephone service installations.

- Railroad interconnected security systems.

- Master controllers with solid-state features with associated equipment and where applicable, cabinet and foundation. The associated equipment shall consist of modems, telephone jacks, switching units, interface boards for copper and fiber optic type interconnect cables, and all associated components for a coordinated traffic control system.

T-2 TEMPORARY TRAFFIC SIGNAL LOCATION

This item shall consist of maintaining a temporary traffic signal location, either as part of a coordinated signal system or an isolated signalized intersection. This item may include, but shall not be limited to, any number or type of the following: traffic signal posts, mast arms, handholes, cabinet, system master controller, local controller, image sensors, a remote traffic PTZ camera and its associated image digitizer (processor), intersection monitor, conflict monitor, malfunction monitor unit, detector amplifiers, modems, relays, load switches, terminal boards, power supplies, vehicle and/or pedestrian signal heads, emergency vehicle preemption system, sections, backplates, brackets, louvers, visors, vehicle detectors, pedestrian-actuated detectors, illuminated signs, crosswalk signs, and/or electrical conduits, cables, and interconnects. In addition, this item may include any number or type of the following: wood poles with down guys, span wire cable, span wire accessories, tether wires, electric service installation and cables, microwave detectors, and/or auxiliary components.

When directed by the Agency, 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.

T-3 FLASHING BEACON, OVERHEAD MOUNT, ONE OR MORE FACES

This item shall consist of maintaining a flashing beacon, either LED or incandescent, mounted overhead. This item may include, but shall not be limited to, a flasher controller in a housing, span-wire installation, and signal head with one or more faces and one or more sections. The span wire installation shall consist of two (2) or more wood poles with down guys, span wire cable, span wire accessories, electric cable, electric service installation, solar panels and batteries.

T-4 FLASHING BEACON, LOW MOUNT, ONE OR MORE FACES

This item shall consist of maintaining a low mount flashing beacon, either LED or incandescent. This item may include, but shall not be limited to, a flasher controller in a housing, electric service installation, solar panels, batteries, traffic signal post and foundation, pedestrian push button, and signal head with one or more faces and one or more sections.

T-5 VEHICLE COUNTING STATION

This item shall consist of maintaining a vehicle counting station. This item may include, but shall not be limited to, any number or type of the following: traffic signal cabinet, pedestal, handhole, detector amplifiers, modem, intersection monitor, vehicle detectors (inductive loop, video, microwave, of magnetometer), power supply, and/or electrical conduits and cables.

T-6 VIDEO COMMUNICATIONS CABINET, GIGABIT ETHERNET

This item shall consist of maintaining a video communications cabinet, and related equipment such as connectors, hardware, media converters, digital video processors, video multiplexers, video and data transmitters, fiber optic termination equipment, cabinet wiring, terminals, circuit breakers, surge arresters, UPS and peripheral equipment, as part of the DDOT Gigabit Ethernet communications network. **This item shall NOT include maintenance of the Cisco Intelligent Ethernet switches (Layer II (data link) switches and/or Layer III (Network) Switches). Initially, these Cisco switches will be maintained and configured by the County's**

Transportation Management Center Consultant. When maintenance of these switches is transferred to this Contract, it will be paid for separately as LAYER II (DATA LINK) SWITCH and/or LAYER III (NETWORK) SWITCH.

T-7 LAYER II (DATA LINK) SWITCH

This item shall consist of maintaining a layer II (data link) switch, all associated video encoders, associated communications hardware, and related adaptive signal control equipment as part of the DDOT Gigabit Ethernet network and the City of Naperville's centralized traffic signal system and adaptive traffic signal system. The layer II (data link) switch shall be a Cisco Catalyst 2950 or 2955 Series Intelligent Ethernet Switch (DuPage County), Cisco IE 4000 Series Models (City of Naperville), or approved equal. **Initially, the County's Cisco switches will be maintained and configured by the County's Transportation Management Center Consultant. When maintenance of the layer II (data link) switch is transferred to this Contract, they shall be maintained under this pay item (as an addition to VIDEO COMMUNICATIONS CABINET, GIGABIT ETHERNET)**.

T-8 LAYER III (NETWORK) SWITCH

This item shall consist of maintaining a layer III (network) switch, all associated video encoders, associated communications hardware, and related adaptive signal control equipment as part of the DDOT Gigabit Ethernet network and the City of Naperville's centralized traffic signal system and adaptive traffic signal system. The layer III (network) switch shall be a Cisco Catalyst 2950 or 2955 Series Intelligent Ethernet Switch (DuPage County), Cisco IE 4000 Series Models (City of Naperville), or approved equal. **Initially, the County's Cisco switches will be maintained and configured by the County's Transportation Management Center Consultant. When maintenance of the layer III (data link) switch is transferred to this Contract, they shall be maintained under this pay item (as an addition to VIDEO COMMUNICATIONS CABINET, GIGABIT ETHERNET)**.

T-9 REMOTE-CONTROLLED VIDEO SYSTEM

This item shall consist of maintaining a remote-controlled video system. This item may include, but shall not be limited to, any number or type of the following: CCTV/Dome camera, equipment cabinet, pole, mounting assembly, and related cabinet wiring, terminals, circuit breakers, surge arresters and peripheral equipment. Occasionally the associated video encoder is located inside a nearby traffic signal cabinet. At these locations, this item shall include maintenance of the conduit and wiring from the traffic signal cabinet to the remote-controlled video system equipment cabinet. **This item shall only be used at isolated locations that are not part of a traffic signal (e.g. along Tollway). This item shall NOT be used to maintain remote-controlled video systems that are already included in ITEM T-1, TRAFFIC SIGNAL LOCATION**.

T-10 PEDESTRIAN CROSSING SIGNAL LOCATION

This item shall consist of maintaining a traffic signal in which its primary function is to stop traffic to allow pedestrians to use the pedestrian crosswalk. This item may include, but shall not be limited to, any items listed in ITEM T-1, TRAFFIC SIGNAL LOCATION.

T-11 FIRE STATION SIGNAL LOCATION

This item shall consist of maintaining a traffic signal in which its primary function is to stop traffic

to allow emergency vehicles to enter the roadway. This item may include, but shall not be limited to, any items listed in ITEM T-1, TRAFFIC SIGNAL LOCATION.

ITEMS L - STREET LIGHTING ROUTINE MAINTENANCE

The following shall be part of Pay Item L-1through L-4.

This item may include, but is not limited to, maintaining any of the following street light installations: a street light mounted on a combination mast arm, a street light mounted under a bridge/overpass, and/or a street light mounted on its own pole or sign lighting. This item shall also include the power distribution cabinet, if applicable. All repairs of malfunctions/damage to a street light installation shall be considered Routine Maintenance, except for damage caused by traffic, construction forces working under agency contracts, permits, or agency personnel, which will be paid for as Extra Work. In addition the Contractor shall provide the following as part of Routine Maintenance of street lighting installations:

- Report to the Agency any unusual operating conditions within two working days of discovery.
- The Contractor shall inspect all street lighting locations currently under Routine Maintenance at least once every four (4) months. This patrol inspection shall include checking for the proper operation of the following items: Lamps/LEDs (for outages), controller (including correct date/time), and cabinet.
- When the Contractor inspects a street lighting location as part of a maintenance transfer inspection, it shall fulfill the requirement for that month's patrol inspection.
- The Contractor shall prepare and maintain a list for each month's patrol inspections. For each calendar month, the list shall include all street lighting locations inspected, the date inspected, the name of the patrolman, and any significant deficiencies identified and corrected. The Contractor shall provide the patrol inspection list to the Agency by the 15th day of the following month.
- Replace all burned out lamps, faulty ballasts, faulty fuses and broken glassware not later than two (2) calendar days following discovery or notification.
- Replace broken or missing light deflectors/shields, as necessary
- Provide Immediate Corrective Action to restore proper working condition to any outage(s) meeting any of the following conditions:
    - Two (2) or more outages on a single circuit.
    - Two (2) or more adjacent or consecutive fixtures.
- If ground conditions restrict the construction of permanent repairs, repairs shall be performed in accordance with a maintenance schedule submitted by the Contractor and approved by the Agency.

ITEMS L-1 through L-4 - STREET LIGHTING ROUTINE MAINTENANCE PAY ITEMS

L-1 LUMINAIRE

This work shall consist of all labor, equipment and material necessary to maintain operation of mast arm mounted high pressure sodium, mercury vapor, or LED luminaires. The cost to repair wiring, photo cells, lenses or time clocks, or other street light components damaged for any reason other than traffic or construction activities by others shall be included in the cost of this item.

L-2 UNDERPASS LIGHTING

This work shall consist of furnishing all labor, materials and equipment necessary to maintain operation of low pressure sodium or LED underpass lighting. The cost to repair wiring, photo cells, lenses, conduit or other underpass lighting equipment components damaged due to any reason other than traffic accidents or construction activities by others shall be included in the cost of this item.

L-3 SIGN LIGHTING

This work shall consist of furnishing all labor, materials and equipment necessary to maintain operation of fluorescent sign lighting. The cost to repair wiring, photo cells, lenses, conduit or other sign lighting equipment components damaged due to any reason other than traffic accidents or construction activities by others shall be included in the cost of this item.

L-4 WASHINGTON STREET NO PARKING SIGNS SYSTEM COMPLETE

This item shall consist of maintaining all equipment associated with the "No Parking/Tow Zone" signs located on Washington Street between Benton Avenue and Chicago Avenue, including but not limited to the ten LED black-out signs, two time clocks/controllers, wiring, cables, and service installation. All other associated equipment within the cabinets shall also be maintained as incidental to this item.

ITEM PS – PUMP STATION ROUTINE MAINTENANCE

The pump stations at County Farm Road and Belmont Road are owned by the DuPage County Division of Transportation (DDOT). The pump stations are used for pumping storm water collected from a viaduct into nearby detention ponds. It is essential that these pump stations shall be available and ready to operate at their designed capacity at all times to keep the traffic moving and to ensure motorist safety. The equipment at these pump stations include: electric motor driven submersible pumps; two sources of power; automatic transfer switch; disconnect switches; transformer; control cabinet that includes motor starters, circuit breakers, standby battery, standby gas generator, control transformer, control system with PLC, SCADA system, gas detection system, and power wiring; transducer water level indicating system with secondary float system; bar screens, hatches, locks, and all associated equipment and appurtenances owned by DuPage County and under the jurisdiction of the Division of Transportation. Refer to Section II (Non-Routine Work) of these specifications for reimbursement of pump and motor damage repairs.

General Maintenance Responsibilities

All items as listed in the System Description herein shall be maintained under routine maintenance, unless otherwise stated herein.

At the beginning of the Contract, the Contractor shall:

- Organize logbooks in the pump station as described herein.

Contractor PS Call-Out Response

The Pump Station (PS) shall remain in continuous operation during normal and emergency maintenance activities. The Contractor shall provide and maintain software to monitor pump house SCADA systems for alarms in their 24 HR/7 Day radio room. It is imperative that the Contractor immediately addresses alarms, reports of water on pavement, reports of clogged inlets, hazmat spills, or other serious malfunctions or damage by dispatching trained personnel to check the pump station.

Although the availability/location of trained personnel dictates the call-out, during normal workday hours, the order of call-out response shall be:

1. PS Specialist
2. PS Crew
3. Other Contractor Personnel Trained in PS Operations

The Contractor shall develop an appropriate emergency PS Call-Out plan to provide trained personnel (hereafter referred to as patrolman) on-call after normal workday hours for pump station emergencies.

The Pump Station Manager shall be notified of any reports of possible hazardous materials in the pump station wet pit, and he/she shall be responsible to immediately notify an approved hazardous materials waste contractor. OSHA safety regulations must be followed at the pump station. Any Contractor personnel entering the pump station shall be properly trained and equipped for confined space operations, and shall be equipped with essential equipment such as digital multi-meters with clamp-on probes for current measurement, tape and block, and marking paint or marker to note water levels.

Station Procedures and Response Documentation

Contractor personnel shall not manually operate the pumps with insufficient wet pit water elevation, for general maintenance operations, including pump inspection, wet pit cleaning, and all other wet pit work requiring abnormally low water levels.

Two logbooks shall be maintained in the pump station control cabinet to document entry/inspection. The Contractor shall maintain the logbooks so that one book contains the current year information and the second logbook contains information recorded in the previous years. In January of each year, the Contractor shall transfer the sheets from the current year logbook to the previous year logbook and place blank sheets in the current year log book. The logbooks shall not be altered or removed from the station.

There are specific procedures, which are required of all personnel when entering or leaving any pump station. It is necessary to:

1. Notify the Contractor's Dispatch Center of arrival.
2. Complete log book chart I, with the date, time, person's name and reason for entry.
3. Upon completion of inspection, record the observations in the required charts in the logbook.
4. Notify the Contractor's Dispatch Center to issue a Ticket for any deficiencies, observed during the inspection. Record the ticket number and the deficiency in the logbook.

5. Acknowledge any alarms before departure.
6. Check all pumps that are not tagged "Out of Service" and set in the auto position (H-O-A switch) immediately before departing the pump station.
7. Secure all control cabinet doors and station hatches.
8. Notify the Contractor's Dispatch Center of departure.

PS Alarm Response

Upon receipt of a Pump Station alarm, the Contractor's Dispatch Center shall:

1. Create a ticket.
2. Dispatch a patrolman to the station to check the alarm conditions. Arrival shall be within one hour of the receipt of the alarm.

Upon arrival at the station, the patrolman shall:

1. Notify the Contractor's Dispatch Center of the arrival information, including a notation of all alarms flashing on the annunciator and PLC panel.
2. Record all information on the incident in the logbook
3. Perform all necessary repairs required to restore the pump station to its normal operating condition, if possible. (If follow-up repairs are needed in an emergency situation, notify the PS Manager immediately.)
4. Notify the Contractor's Dispatch Center, as to status of problem, whether it was cleared or if follow-up work by the PS Specialist or PS Crew is necessary, before departing the pump station. (All response information shall be recorded on the ticket.)
5. In the event of a power failure alarm, monitor the power outage status at regular intervals and notify the Pump Station System Manager and the DDOT ComCenter (located in the DDOT office in Room 2-300 in the main county complex) if a high water level is imminent.

Station Pre-Storm Condition Check

Upon receiving a storm warning, code Red or Black, from the DDOT ComCenter or Engineer, the Contractor shall dispatch sufficient trained personnel to initiate these actions within one hour:

1. Check the operating status of the pump station.
2. Check the condition of the trash on bar screen, clean if necessary.
3. Check the status of the low point inlet and catch basins for the pump station, if found clogged notify DDOT ComCenter immediately.
4. Submit a checklist (spreadsheet), indicating the time each pump station was checked, to the PS Engineer when completed.

Water on Pavement Situations

The dispatched patrolman shall be equipped with the necessary measuring devices to trouble shoot and mark the water level with a reference point.

Upon observing Water on the Pavement (WOP) or extremely high water levels at the station, the Patrolman shall immediately notify the MC's Dispatch Center, who shall in turn notify the DDOT ComCenter.

Immediately after entering the station, the dispatched patrolman shall report the following information:

1. Pumps Running -- Yes or No
2. Water Depth in Wet Well
3. Depth of Water on Pavement
4. Street Inlet Clogged -- Yes or No

The patrolman shall obtain a ticket number from the MC's Dispatch Center and complete the station logbook. All ticket information and WOP report information shall be relayed to the MC's Dispatch Center within one (1) hour of receipt of information from the field. All WOP report tickets shall be marked for follow-up until the pump station system is back to normal operation and there is no water on the pavement. All incidents shall be reported to the Engineer via a W.O.P. report and ticket summary report by 8 a.m. the next day (within 24 hours on Holidays).

During high water level or WOP conditions, the patrolman shall not leave the station until approved to do so by the PS Manager.

Station Post Storm Condition Check

After each major rainstorm event (i.e. having a rainfall intensity of 3 inches in 24 hours or greater), the pump station crew shall:

- Clean bar screen.
- Check the Pump Pit float switches and level transducer sensor for proper operation, and remove debris, and
- Check the inlet/catch basins. If clogged, notify DDOT ComCenter.

Submittals of Service Company Names

The Contractor shall submit the following, for Engineer approval, at the Pre-Construction meeting:

- Names, addresses qualifications of at least six potential submersible pump services repair companies within the tri-state area of Illinois/Indiana/Wisconsin.
- Name(s) of lab facilities that are certified and equipped to test oil and other lubricant fluids.

Service Company Work

When the Contractor is unable to complete repairs to pump station equipment, the Contractor shall hire a subcontractor approved by DDOT to do the work.

The Contractor shall provide all labor, equipment, and general services necessary to schedule and assist a specialty service company in conducting various comprehensive testing and inspections, including routine and non-routine work.

The Contractor shall coordinate the work with the service companies and provide qualified personnel to:

- Allow free and clear access to and from the pump station and all equipment.
- Open and close all enclosures to provide access to the electrical equipment being inspected, replaced and/or repaired.
- Notify the power utility company to schedule all power outages required for the project.
- Perform all switching, de-energizing and re-energizing of electrical equipment.
- Perform lock out tag out procedures.
- Provide for safe working conditions in accordance with OSHA requirements.
- Assist in data collection when requested by the Engineer.

Monthly PS Quick Check

The Contractor shall perform a monthly PS quick check at the pump station. The patrolman shall notify the Contractor's Dispatch Center to create a Ticket for all deficiencies or malfunctions found.

During the inspection, check the following:

1. Are inlets clear of debris?
2. Is grass cutting required?
3. Are equipment doors and hatches secure and free of graffiti?
4. Alarm panel OK? (No alarms holding)
5. Lighting fixtures outages?
6. Are Indicator lamps in operational?
7. Is trash bin free of debris?
8. Does bar screen need cleaning?
9. Is wet pit free of hazardous materials?
10. Pump On/Off operation OK? (Simulate a call)
11. Abnormal noise from pumps?
12. Is piping free of leaks?
13. Is pump free of abnormal noise or vibration?
14. Verify gas detector calibration.

Monthly Preventive Maintenance Program

The Contractor shall perform the following inspections and allow thirty (30) days between the inspections.

Monthly Pump Operation Inspection

The Contractor shall perform the following and record on the appropriate chart (see pump data and sample forms):

- Operate each pump and check alternator or selector switch for proper sequence in accordance with recommended manufacturer procedures. Caution: Do not draw down the wet well level past the designated stop elevation under any circumstances.
- Set the selector switch on the pump with the least number of hours as the lead pump.
- Operate each unit noting the current draw and compare with the motor plate and note any deviation, and/or any abnormal operating sounds.

- Record hours run of each pump.
- Verify that flap valves have been greased.
- Verify condition of bar screens.

The Contractor shall submit an electronic copy of the chart, as approved by the Engineer, once every two months, in the monthly routine maintenance work documentation book.

Monthly Bar Screen Maintenance

The Contractor shall inspect the bar screen at the pump station, rake and manually clean the bar screen, when debris are excessive and clogging the bar screen.

Monthly Transfer Switch Operation and Gas Generator Inspection

The Contractor shall exercise the transfer switch, on a monthly basis, to inspect for proper transfer and time delay to secondary power source and time delay from secondary to primary and shall be recorded in the appropriate chart.

The Contractor shall submit an electronic copy of the chart, as approved by the Engineer, once every two months, in the monthly routine maintenance work documentation book.

The Contractor shall start and run the gas generator for 15 minutes each month, observe the operation, and make all maintenance checks required by the manufacturer.

Monthly Programming Logic Control (PLC) Maintenance

The Contractor shall be responsible for proper operation and maintenance of the PLC System equipment described herein. The Contractor shall record and submit an electronic copy of the appropriate chart (Log P-7), as approved by the Engineer, once every two months, in the monthly routine maintenance work documentation book.

The PLC System shall have its periodic maintenance activities/programs completed by the Pump Station (PS) Specialist. On a monthly basis, the PS Specialist shall review the operations and do a simulated test of the PLC System. This work would include system back-ups, programming, selector switches, standby battery, control transformer, elapsed time meters, alarm points, alarm lights, level transducer, backup floats, and wiring.

The PS Specialist shall inspect all the wires and test control transformer, selector switches, standby battery, elapsed time meter, and alarm lights to make sure they are in operational.

The PS Specialist shall test all of the alarm points under simulated service conditions to assure the accuracy of the wiring and the functioning of all the equipment without disrupting the operation of the pumps. The alarm points are as follows:

A. Remote Alarm Contacts to Monitoring Equipment at Power Plant:
- Standby power not available
- Loss of normal power
- Pump malfunction
- High Level Alarm

In addition, the PS Specialist shall verify that these alarm points are properly displayed at the Monitoring System at the DuPage County Power Plant Building.

B. Transfer Switch Contacts:
   - Normal
   - Backup

C. Combustible Gas Monitor Contacts:
   - Trouble
   - Warning
   - Alarm

D. Thermal and Seal Failure Pump Sensors:
   - PS Specialist shall simulate the signals to make sure the PLC is in operational.

E. Level Transducer:
   - PS Specialist shall simulate water level signals to make sure the PLC is in operational.

F. Backup Floats:
   - PS Specialist shall simulate water level signals to make sure the PLC is in operational.
   - PS Specialist shall test each float switch manually in the wet pit to make sure it is in operational. PS Specialist should be careful when perform this test due to water in the wet pit.

G. Pilot Light Indicators
   - PS Specialist shall verify all local indicating lights are operational when the alarm condition is simulated.

Semi-Annual Wet Pit Submersible Pump Station Maintenance

The pump station shall be inspected once between the months of January and June and once between the months of July and November and the inspections for the station shall be spaced six months apart throughout the term of the contract.

The Contractor shall visually inspect pump impeller for clogging, shall inspect oil reservoir for contaminants. The wet pit submersible pumps shall be washed down with a pressure hose.

The Contractor shall operate the flap valves. All flap valves shall be lubricated with environmentally safe grease.

The Contractor shall submit an electronic copy of the appropriate chart, as approved by the Engineer, once every 6 months, in the semi-annual routine maintenance work documentation. Create tickets for any deficiencies found and enter the ticket numbers on a chart. When repairs are complete, a chart shall be submitted in the semi-annual routine maintenance workbook.

Yearly Preventive Maintenance Programs

The contractor shall perform inspections once a year as described below.

Yearly Wet Pit Inspection

The pump station shall be inspected once between the months of April and October of each year. The station shall be inspected in the same month in the second year of the Contract.

The Contractor shall complete the wet pit inspection of the pump station. The Contractor shall use his own portable pump to draw down the wet pit to a low level and maintain the existing inflow water in the wet pit. The Contractor shall:

- Inspect the integrity of all equipment attached to the structure such as level transducers and the floats.
- Inspect the level transducers and floats for operational efficiency, and clear them of any debris.
- Take a photograph of any bowl assemblies which show any wear on the impeller and/or if the suction is clogged with debris. The photos shall be appropriately labeled and placed in a sheet album with the station report, log P-6.
- Inspect the silt accumulation.
- Visually inspect the inlet sewer from inside of the pump station.

Each report, including photo album, shall be included with the monthly routine maintenance work documentation book. Create tickets for any deviations found and enter the numbers on the report log P-6

Yearly Pump Control System Inspection

The pump station shall be inspected once between the months of January and March of each year. The station shall be inspected in the same month in the second year of the Contract.

The Contractor shall inspect all pump control systems within the pump station. The Engineer shall be present for each inspection. This work shall include inspection of the transducer and float systems. The inspection shall consist of all starts, stops and alarm control elevations. Any control elevations which are different than the required elevations shall be noted and corrected.

Create tickets for any deficiencies found on this inspection and enter the numbers on the inspection report, log P-4. Each report shall be included with the monthly routine maintenance work documentation book.

Yearly Pump Station Inspection and Maintenance

The pump station shall be inspected once between the months of January and November of each year.

The Contractor shall conduct an annual comprehensive inspection of the electrical and mechanical equipment at each pump station using log P-2 and shall:

- Dispose of any debris found on the grounds
- Remove or paint over graffiti with comparable paint
- Patch or repair cracks found in concrete
- Clean all cabinets and exposed equipment by wiping with a damp cloth

Create tickets for any deficiencies found on this inspection and enter the numbers on the inspection report, log P-2. A re-inspection will be scheduled by the Engineer following

completion of any necessary repair work. When repairs are complete the P-2 reports shall be included in the monthly routine maintenance work documentation book. The stations shall be inspected in the same month in the second year of the Contract.

Yearly Electrical Inspection and Testing

The Contractor shall conduct the following inspections and tests:

A. The Contractor shall conduct pump capacity, motor running current, voltage measurement, megger, and Flygt submersible pump moisture tests. The Contractor shall also utilize the services of the specialty services subcontractor for this test. The Contractor shall be responsible for providing or storing water for testing, not to exceed high level elevations.

The Contractor shall provide as needed all necessary equipment, tools, material and labor to set up the pumping station for capacity testing using either the wet pit draw down method or the direct measurement strap on flow meters, as approved by the Engineer.

Prior to testing, record all necessary nameplate information for pump and motor. Pump testing will require the presence of at least two personnel equipped with radio communications and measuring tape and block.

A draw down test shall be done in the pump station. The pumps shall be tested for at least for 1-minute duration. Record all readings, including full load current, flow reading and water level change.

The following data shall be recorded and submitted to the Engineer on log P-3:

- Water depth
- TDH
- Capacity
- Vibration
- Current
- Voltage
- Insulation resistance to ground
- Pressure

In addition, the Contractor shall megger all motor windings and feeder cables. Any reading below 1 Mega ohm (Mohm) will require the Contractor to determine the source or cause of the low reading and make prompt repairs as required. A copy of the log P-3 shall be kept in the logbook. Create tickets for any deficiencies found on this inspection and enter the numbers on the inspection report, log P-3. An electronic copy of the results of the capacity and megger test on log P-3 shall be submitted to the Engineer with the monthly routine maintenance book. The station shall be re-inspected in the same month in the second year.

B. The Contractor shall inspect and test the main circuit breakers, branch circuit breakers, automatic transfer switch and motor starters in the pump station each year. The DDOT Engineer shall be notified at least twenty-four hours in advance to witness the tests. The Contractor shall coordinate with the electrical utility to turn power off and on where required. The Contractor shall furnish all necessary test equipment along with fittings, cables and connectors as required to complete the tests.

The Contractor shall submit an electronic copy of the appropriate chart, as approved by the Engineer, once a year, in the yearly routine inspection and testing work documentation.

Inspection and testing shall consist of the following:

1. Clean enclosure and control equipment by blowing out with low air pressure or vacuuming.
2. Check and clean contacts, relays and timers and visually inspect for damage or out of adjustment parts.
3. Check control panel indicating lamps and all switches and push buttons.
4. Circuit breaker maintenance:
   - Check connections
   - Exercise breaker
   - Check trip setting
5. Motor Starter Contact Maintenance:
   - Check contacts and burnish, if necessary
   - Check coil and clean
   - Inspect arc chute for cracks or burns
   - Check contact pressure and measure contact resistance on all 3 phases
6. Inspect wiring/conductors for overheating and discoloration.
7. Check sizing of motor overload heaters.
8. Check tightness of wire terminations and connections.
9. Check for proper labeling, provide and install missing labels.
10. Check wire tags/labels, provide and install missing tags or labels.
11. Check fuse disconnects for proper operations, keep fuse clips clean and tight.
12. Check fuses for proper size, and overheating.
13. Test equipment ground system of the station.

Yearly Submersible Pump Inspection

The Contractor shall remove, inspect and service all submersible pumps, each contract year. Service work shall include the changing of oil, check and adjust clearance between impeller and wear ring. This work shall be done in accordance to manufacturer specifications and instructions. Create tickets for any deficiencies found on this inspection and enter the numbers on the inspection report, log P-5.

Yearly Oil Analysis

The Contractor shall obtain suitable test containers from an approved lab facility. Collect oil samples from the motor upper and lower bearing compartments, and wet pit submersible pumps. The oil shall be drawn from the equipment reservoir. The oil should drain for a few seconds before collecting the sample. A minimum of two (2) ounces of oil shall be used for analysis. Do not use the same container for different equipment or for different compartments of the same equipment.

Samples shall be taken after running the pump within fifteen minutes after the equipment is turned off. This work shall be done along with the capacity and vibration test.

The Contractor shall provide the laboratory with the brand and type of oil, type of equipment from which the sample was taken, number of days since the last oil change, and any suspected abnormalities in the equipment. Each sample of oil shall be identified with the equipment and

compartment from which the sample was taken. The Contractor shall ship the oil samples to the lab facility within one month of collection.

The lab facility shall conduct a wear particle analysis to determine:

- Wear metals
- Contaminants
- Additives elements
- Viscosity
- Solid percent volume
- Water percent volume
- Fuel where required
- Particle counting and direct reading ferrography

Create tickets for any deficiencies found from the lab testing and submit an electronic copy of the lab reports to the Engineer with operating software that can utilize existing data for trending. Based upon the lab report, the Engineer may request additional analytical ferrography testing. The oil shall be changed if the lab results indicate that the oil is contaminated. All charges for lab work, shipping, and changing of oil etc., shall be covered under routine maintenance.

Pump Data and Sample Forms:

County Farm Road Pump Station
Summary Data Sheet

Location/Description

County Farm Road Pump Station construction was completed in 2002. The pump station was constructed to service the storm water flow associated with the grade separation of CH 43 County Farm Road under the Union Pacific Railroad in Wheaton, IL. The pump station is fitted with three submersible pumps (2 duty and 1 standby). The pump controls are based on level measurements taken in the wet well using a level transducer with backup float level measurement. All alarms are hard wired back to the DuPage County Com Center. The pump station has two sources of power with an automatic transfer switch. The primary feed is from Commonwealth Edison and the secondary feed is from the emergency panel located in the Power Plant Building that is owned and operated by DuPage County.

Pumps	
Number	3
Type	Submersible
Capacity in gpm	2695
Design Head (TDH) in feet	35
Shutoff Head in feet	82
Manufacturer	Flygt
Model No.	CP3201
Impeller No.	636
Discharge Diameter in Inches	8
Motor HP	35
Explosion Proof?	Yes
Voltage	460
Phase	3
Pump Control System	
Primary	Transducer
Secondary	Float
Remote Alarm Conditions	
Standby Power Not Available	
Loss of Normal Power	
Pump Malfunction	
High Water Level	

Table P-1 (10/02)

Belmont Road Pump Station
Summary Data Sheet

Location/Description

Belmont Road Pump Station construction was completed in 2012. The pump station was constructed to service the storm water flow associated with the grade separation of CH 2 Belmont Road under the Burlington Northern and Santa Fe Railroad in Downers Grove, IL. The pump station is fitted with four submersible pumps (3 duty and 1 standby). The pump controls are based on level measurements taken in the wet well using a level transducer with backup float level measurement. All alarms are hard wired back to the Meade Electric Radio Room. The pump station has two sources of power with an automatic transfer switch. The primary feed is from Commonwealth Edison and the secondary feed is from Nicor Gas Company.

Pumps	
Number	4
Type	Submersible
Capacity in gpm	2468
Design Head (TDH) in feet	30
Shutoff Head in feet	82
Manufacturer	Xylem
Model No.	NP3202.090-5217
Impeller No.	643
Discharge Diameter in Inches (High Flow)	12
Discharge Diameter in Inches (Low Flow)	6
Motor HP	35
Explosion Proof?	Yes
Voltage	460
Phase	3
Pump Control System	
Primary	Transducer
Secondary	Float
Remote Alarm Conditions	
Standby Power Not Available	
Loss of Normal Power	
Pump Malfunction	
High Water Level	

Table P-2 (10/12)

DDOT PS ALARM STATUS - PREVENTATIVE MAINTENANCE LOG P-1

Pump Station No. | **Inspection Date:** | **Call #**

Alarm Code	Function	Wired? Yes/No	Alarm Received By DDOT? Yes/No	By Contractor? Yes/No	Test Comments:
1	Standby Power Not Available				
2	Loss of Normal Power				
3	Pump Malfunction				
4	High Water Level				

Problem Yes/No	Physical Condition Checklist Item	Comment
	Wiring	
	Alarm Lights	
	Battery Condition	Volts

List General Alarms for this Pump Station:
List General Alarm (Code 2) Comments:

Log P-1 (10/02)

PUMP STATION INSPECTION CHECKLIST (ANNUAL)

Date: _____ Patrol #/Name: _____
P.S. #:_____ Location: _____
Last MC Patrolman in the Station: _____ Patrol #: _____

NA	Items	O.K.	Abnormalities/Remarks
	1. Log Book Charts		
	A. Patrol Frequency	☐	_____
☐	B. Sluice Gate Operation	☐	_____
	C. _____		_____
	2. Alarms Holding	☐	_____
	3. Breakers or Fuse Disconnect		
	A. Mains	☐	_____
	B. Branch	☐	_____
	C. Others	☐	_____
☐	4. Main Motor Oil Levels	☐	_____
	A. Top Reservoir	☐	_____
	B. Bottom Reservoir	☐	_____
☐	5. Motor Operation (visual & feel test)	☐	_____
	A. Vibration	☐	_____
	B. Hum	☐	_____

PUMP STATION INSPECTION CHECKLIST (ANNUAL)

☐	Alternator – Manual Check Chart A for indication Patrolman changing lead pump	☐	_____
	6. Meters/Counters		
	A. Hours Pump 1	☐	_____
	B. Hours Pump 2	☐	_____
	C. Hours Pump 3	☐	_____
	7. Pumps		
	A. Noise	☐	_____
	B. Vibration	☐	_____
	C. Capacity	☐	_____
☐	8. Bar Screen Condition	☐	_____
☐	9. Terminal, Wire & Insulation Integrity	☐	_____
☐	10. Ground System	☐	_____
☐	11. Power		
	A. Line #1 (ComEd Voltage)	☐	_____
	B. Line #2 (Power Plant Voltage)	☐	_____
	C. Transfer Switch	☐	_____
☐	12. Debris		
	A. Wet Pit "pump down to low level to determine silt level for cleaning (use draw down pump)"	☐	
	B. Screens	☐	_____
	C. Outflow	☐	_____
	D. Grounds	☐	_____

PUMP STATION INSPECTION CHECKLIST (ANNUAL)

☐ 13. Leaks
- A. Discharge Piping ☐ _____
- B. Structure ☐ _____
- C. Service Conduits ☐ _____

☐ 14. Ladders/Safety Cages ☐ _____

☐ 15. Grate/Hatch Covers (clips missing, etc.) ☐ _____

☐ 16. Lights
- A. Inside ☐ _____

☐ 17. Fencing
- A. Gates ☐ _____
- B. Posts ☐ _____
- C. Fabric ☐ _____

☐ 18. Painting
- A. Discharge Pipe ☐ _____
- B. Grates/Hatches/Ladders ☐ _____
- C. Motors/Bases ☐ _____
- D. Pumps ☐ _____
- E. Cabinets ☐ _____

☐ 19. Control Processor
- A. Water Level Indicator ☐ _____
- B. Current ☐ _____
- C. 3 ∅ Voltage ☐ _____

ACTIONS

☐ Put "□" in Chart Book
☐ Called Dispatcher for _____
List Ticket #'s _____

Log P-2 (page 3 of 3) (Rev. 10/02)

Pump Station :	**PUMP OPERATION TEST RESULTS**	**Test Date :**

Make adjustments to impeller setting when pump capacity has dropped significantly.

Instructions: Check each pump per contract specifications and record results below.

Any readings below or above normal operating parameters must be recorded on a Ticket and DDOT shall be notified immediately.

	Impeller Setting		Wet Pit	Capacity	PUMP	PUMP	Current (Amps)				Voltage (Volts)			Megger (Meg-OHMS)			Pressure Gauge	Peak Vibration
Pump #	As Found	Adjustment (As Left)	Water Level	(GPM)	Starts	Hours Run	A	B	C		A	B	C	A	B	C	Reading	IPS

Log P-3 (Rev. 10/02)

PUMP CONTROL SYSTEM INSPECTION

PUMP STATION NUMBER:	DATE:

Examples of Applicable Control Points	SCADA CONTROL POINTS		TRANSDUCER VALUES		FLOAT VALUES			
	SP #	VALUE	IDEAL	ACTUAL	IDEAL	ACTUAL		
LOW LEVEL								
ALL / LOW FLOW PUMP OFF PUMP								
LOW FLOW PUMP ON								
MAIN PUMPS STOP								
LAG 1 OFF								
LAG 2 OFF								
LAG 3 OFF								
MAIN PUMP START								
LAG 1 ON								
LAG 2 ON								
LAG 3 ON								
ALL ON								
HIGH LEVEL								

Log P-4 (Rev. 10/02)

PUMP STATION:	**SUBMERSIBLE PUMP INSPECTION**					**DATE:**
PUMP POS.	TYPE	MODEL #	CLEAN PER 8.6.1	PUMP IMPELLER SIZE	PUMP IMPELLER INSPECTION	OIL CHANGE NO. OF PINTS AND GRADE
COMMENTS:						

Log P-5 (Rev. 10/02)

WET PIT INSPECTION

1: Inspect grease lines on all pumps and note their condition

	Pump 1	**Pump 2**	**Pump 3**
Good			
Satisfactory			
Need Repair			

2: Inspect integrity of all equipment attached to the perimeter of wet pit

Check Condition Of	Floats	Probes		
Good				
Satisfactory				
Need Repair				

3. Inspect condition bar screens. Also, check the integrity of the inlet sewer noting any excess debris accumulation in the sewer.

Comments:

4. Inspect and take pictures of any bowl assemblies, which show any wear on the impeller and / or if the suction, is clogged with debris. The photos shall be appropriately labeled and placed in a sheet album.

5: Note the amount of silt accumulation in inches or feet.

Log P-6 (Rev. 10/02)

PLC SYSTEM MAINTENANCE
PLC EQUIPMENT CHECK LIST

PUMP STATION #:	DATE:	COMPLETED BY:

DIGITAL INPUTS

	OK			COMMENTS
PUMP 1 AUTO				
PUMP 2 AUTO				
PUMP 3 AUTO				

ENTRY KEY IN NON-ALARM POS.		
TRANSFER SW IN NORMAL		
TRANSFER SW IN EMERGENCY		

DIGITAL INPUTS (Cont.)

	OK		OK	COMMENTS
PUMP 1 BREAKER				
PUMP 2 BREAKER				
PUMP 3 BREAKER				
PUMP 1 St. CONTACTOR				
PUMP 2 St. CONTACTOR				
PUMP 3 St. CONTACTOR				
SERVICE #1 DISCONNECT OPEN				
SERVICE #2 DISCONNECT OPEN				
PUMP 1 OVERLOAD TRIP				
PUMP 2 OVERLOAD TRIP				
PUMP 3 OVERLOAD TRIP				
MANUAL SEQUENCE SWITCH (ALL SELECTIONS)				
PUMP 1 OVERTEMP TRIP				
PUMP 2 OVERTEMP TRIP				
PUMP 3 OVERTEMP TRIP				
MISC. DIGITAL INPUTS				

PLC SYSTEM MAINTENANCE
PLC EQUIPMENT CHECK LIST

PUMP STATION #:	DATE:	COMPLETED BY:

ANALOG INPUTS

	PLC	ACTUAL	COMMENTS
PRI. XDUCER LEVEL			

ITEM PS-1 – PUMP STATION ROUTINE MAINTENANCE PAY ITEM

PS-1 PUMP STATION

This work shall consist of all labor, equipment and material necessary to maintain operation of the pump station as described above.

The Contractor shall provide the maintenance on an as needed basis for the following items such as, but not limited to, the gas detector inspection, automatic transfer system service, adjustment of existing controls, removal and replacement of gas sensors, motor inspection, cylinder for padlocks, padlock replacement, pump repair and pump replacement, vibration testing and analysis, water for testing and power wash, cleaning of wet pit, and wet pit power wash. All costs of repairs of pump and motor assemblies damaged under normal use shall be paid for at an agreed price on a case by case basis as approved by the Engineer.

ITEM EW-1 – BUDGETARY ALLOWANCE FOR EXTRA WORK

This item is to establish a budget account to allocate funds for various traffic signal and/or street lighting extra work items. This account may be used to pay for projects such as signal equipment installations, modifications, relocations, upgrades, etc. It may also be used for procurement, installation, testing, and evaluation of special equipment, including support and/or training from hardware and software vendors. This item is not for materials and services included under Routine Maintenance.

Basis of Payment: The Agency will evaluate the quotations and authorize work accordingly. The total estimated amount of annual expenses to be incurred for goods and services performed under this item is shown on the schedule of prices and shall be used for bidding purposes for pay item EW-1.

ITEM KD-1 – BUDGETARY ALLOWANCE FOR EQUIPMENT KNOCKDOWNS

This item is to establish a budget account to allocate funds for temporary and/or permanent repairs to equipment which is damaged by traffic. This account may be used to pay for repair or replacement of any equipment hit/knocked down/damaged due to traffic, including mast arm assemblies, signal heads and posts, cabinets, cameras, radios, streetlighting, or any other equipment owned or maintained by the Department. Equipment damage may occur from typical roadway traffic, utility vehicles, construction vehicles, mowers, etc. This item is not for materials and services included under Routine Maintenance.

Basis of Payment: Repairs shall be paid to the Contractor on a Force Account Basis in accordance with Article 109.04 (b) of the Standard Specifications. The total estimated amount of annual expenses to be incurred for goods and services performed under this item is shown on the schedule of prices and shall be used for bidding purposes for pay item KD-1.

ITEM EQ – EQUIPMENT

Under this item, for unit prices as shown in the Schedule of Prices, and when directed by the Agency in writing, the Contractor shall furnish all materials, equipment, and labor necessary to perform the work as specified herein. All materials or work not expressly specified but necessary for the proper completion in a neat, professional manner shall be considered included in the cost of the associated pay item and shall be included under the unit bid prices.

The following standards, latest revisions, shall be used, as applicable, for each authorization issued to the Contractor or as directed by the Agency:

Illinois Department of Transportation Standards:
720016, 805001, 814001, 814006, 857001, 857006, 862001, 873001, 876001, 877001, 877006, 877011, 878001, 880001, 880006, 886001, 886006

EQ-1 SIGNAL HEAD, LED, 1-FACE, 1-SECTION, MOUNTING AS SPECIFIED
EQ-2 SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MOUNTING AS SPECIFIED
EQ-3 SIGNAL HEAD, LED, 1-FACE, 4-SECTION, MOUNTING AS SPECIFIED
EQ-4 SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MOUNTING AS SPECIFIED
The items listed above shall comply with the SIGNAL HEAD, LIGHT EMITTING DIODE section of the DuPage County Division of Transportation Traffic Signal Special Provisions contained in this Contract.

These items shall be paid for at the Contract unit price each for SIGNAL HEAD, LED, of the type specified, which price shall be payment in full for furnishing the equipment described above including signal head, LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of signal sections, and the method of mounting.

EQ-5 PEDESTRIAN SIGNAL HEAD, LED, MOUNTING AS SPECIFIED
This item shall comply with Section 881 and Article 1078.02 and with the SIGNAL HEAD, LIGHT EMITTING DIODE section of the DuPage County Division of Transportation Traffic Signal Special Provisions contained in this Contract.

This item shall be paid for at the Contract unit price each for PEDESTRIAN SIGNAL HEAD, LED, MOUNTING AS SPECIFIED, which price shall be payment in full for furnishing the necessary equipment including signal head, LED module(s), and hardware, and installing it, by the required method of mounting, in satisfactory operating condition.

EQ-6 PEDESTRIAN SIGNAL HEAD, LED, COUNTDOWN, MOUNTING AS SPECIFIED
This item shall consist of two (2) 12-inch by 12-inch modules aligned vertically. The top module of the unit shall be an LED message-bearing surface supplied with overlapping outline “HAND” and “MAN” symbols that comply with the PTCSI standard for these symbols. The bottom module of the unit shall house a LED countdown traffic signal consisting of a two digit numerical display (“00” to “99”) a minimum of seven (7) inches in height. 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 clearance interval. The counter shall be blank at all other times.

The use of a 16’X18” overlapping pedestrian signal indication may be allowed by approval of the Agency.

The unit price shall be payment in full for furnishing and installing the pedestrian signal head, LED, Countdown, with the required method of mounting. The unit price shall also include furnishing and installing any cabinet modules and/or interface cards necessary for proper operation.

EQ-7 AUDIBLE/ACCESSIBLE PEDESTRIAN SIGNALS (APS) (COMPLETE INTERSECTION), MOUNTING AS SPECIFIED

This item shall consist of furnishing and installing pedestrian push button audible/accessible pedestrian signals (APS). Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

This item shall be paid for at the Contract unit price each for AUDIBLE/ACCESSIBLE PEDESTRIAN SIGNALS (APS) (COMPLETE INTERSECTION), MOUNTING AS SPECIFIED, which price shall be payment in full for furnishing the necessary equipment including interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid state electronic control board, a power supply, wiring, mounting hardware, and installing it, by the required method of mounting, in satisfactory operating condition.

EQ-8 TRAFFIC SIGNAL BACKPLATE

This item shall comply with Section 882 and Article 1078.03 of the Standard Specifications for Road and Bridge Construction. The backplate shall be louvered and aluminum. The louver openings shall cover a minimum of twenty percent (20%) of the surface of the backplate.

EQ-9 TRAFFIC SIGNAL BACKPLATE (RETROREFLECTIVE)

This item shall comply with Section 882 and Article 1078.03 of the Standard Specifications for Road and Bridge Construction. The retroreflective backplate shall not contain louvers. Retroreflective sheeting shall be Type ZZ sheeting according to Article 1091.03 and applied in preferred orientation for the maximum angularity according to the vendor's recommendations. The retroreflective sheeting shall be installed under a controlled environment at the vendor/equipment supplier before shipment to the contractor. The formed plastic backplate shall be prepared and cleaned, following recommendations of the retroreflective sheeting manufacturer.

EQ-10 EMERGENCY VEHICLE PREEMPTION SYSTEM

This item shall consist of furnishing and installing an Emergency Vehicle Preemption System in accordance with Section 887 and Article 1072 of the Standard Specifications for Road and Bridge Construction, and shall include light detector(s), light detector amplifier(s), and LED confirmation beacon(s). The Emergency Vehicle Pre-emption shall be the latest type manufactured and must be completely compatible with all components of the equipment currently in use by the fire district at the location specified by the Agency. All necessary cable from cabinet to detectors, mounting hardware, and labor to complete the installation shall be included in cost of this item.

EQ-11 FULL ACTUATED CONTROLLER, IN TYPE IV CABINET, NEMA-TS2

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 be the latest model available that is compatible with the central signal system software (NTCIP) or "Aries" software, currently in use by DDOT. Controller software compatibility requirements are based upon the controller's location in the communication system, and shall be as shown on the plans.

The unit price shall include 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 Agency. If required, the transceiver shall be included in cost of this item. Removal of an existing controller, and its return to the County, shall also be included in cost of this item.

EQ-12 INSTALL EXISTING TRAFFIC SIGNAL CABINET

This item shall consist of installing a traffic signal cabinet at an existing signal cabinet location, and shall be used when the pre-wired signal cabinet is being provided by the Agency. This item shall include the installation, connection, and or modification of all necessary equipment including panels, program card, wiring, connectors, harnesses, mounting hardware, and related equipment necessary for proper operation. The existing cabinet which is being replaced shall be returned to DDOT.

EQ-13 INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER

This item shall consist of installing a traffic signal controller and associated components at an existing signal controller location, and shall be used when the signal controller is being provided by the Agency. This item shall include providing and installing all necessary panels, wiring, connectors, harnesses, mounting hardware, and related equipment necessary to complete the installation in accordance with the manufacturer's specifications. The existing controller which is being replaced shall be returned to the DuPage County Division of Transportation.

EQ-14 FULL ACTUATED CONTROLLER

This item shall consist of furnishing and installing a traffic signal controller and associated components in a traffic signal cabinet, as directed by the Agency.

The controller shall be the latest model available that is compatible with the central signal system software (NTCIP) or "Aries" software, currently in use by DDOT. Controller software compatibility requirements are based upon the controller's location in the communication system, and shall be as shown on the plans.

EQ-15 INSTALL UPDATED PROM SET AT EXISTING LOCAL OR MASTER CONTROLLER

This item shall consist of installing a new PROM or set of PROMS of the latest version of software in an existing traffic signal local or master controller. At locations that contain coordination modules, all PROMS in the controller, telemetry module, and coordination module must be of the same version and revision. New system interface board shall be included in cost of this item.

EQ-16 UPGRADE EXISTING LOCAL CONTROLLER SOFTWARE TO NTCIP

This item shall consist of furnishing and installing the latest version of National Transportation Communications for ITS Protocol (NTCIP) software in an existing traffic signal controller. The unit price shall include payment in full for furnishing and installing the software, and placing the controller back in operation.

EQ-17 DETECTOR LOOP

This item shall comply with Section 886 and Article 1079.02 of the Standard Specifications.

Loop detectors shall be installed according to the "District 1 Standard Traffic Signal Design Details."

Each loop detector lead-in wire shall be labeled in the handhole using a Panduit 250W175C waterproof tag or approved equal secured to each wire with nylon ties. The location of each dive hole shall be marked on the face of the curb or handhole with a saw cut.

Detector loops to be installed in the proposed asphalt pavement must be placed in the binder course, as directed by the Agency. Detector loops to be installed in existing asphalt pavement shall be located to miss existing pavement cracks, if possible. Detector loops to be installed in concrete pavement shall be located to miss pavement joints and cracks, if possible.
All detector loop saw cuts are to be filled with approved sealant to no higher than 1/8 inch below the surface of the pavement, and all excess sealant deposited on the pavement shall be removed immediately. Loop sealant shall be a two-component thixotropic chemically curing polyurethane such as Chemque Q-Seal 295, Perol Elastic Cement A/C Grade, or an approved equal.

Where approved by the Agency, 6-foot diameter round loops may be substituted for 6-foot by 6-foot square loops.

EQ-18 PEDESTRIAN PUSH BUTTON

Replace Article 1074.02 of the Standard Specifications with the following:

This item shall comply with the PEDESTRIAN PUSH BUTTON section of the DuPage County Division of Transportation Traffic Signal Special Provisions contained in this Contract.

This work shall be paid for at the contract unit price each for PEDESTRIAN PUSH BUTTON. The unit price shall include furnishing and installing the pedestrian station, push button, sign, and all necessary equipment and connections for proper operations. Electric cable in conduit from the traffic signal cabinet to the pedestrian push-button shall be paid for separately.

EQ-19 GALVANIZED STEEL CONDUIT IN GROUND, 2 INCH

The above item~~s~~ shall comply with the CONDUIT IN GROUND section of the DuPage County Division of Transportation Traffic Signal Special Provisions contained in this Contract. All conduit installed underground shall be fully buried a minimum depth of thirty (30) inches.

This work will be paid for at the contract unit price per foot for CONDUIT IN GROUND 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 cost of this item.

EQ-20 COILABLE NON-METALLIC CONDUIT IN GROUND (CNC)

This item shall consist of furnishing and installing empty coilable non-metallic conduit (CNC) and comply with the CONDUIT IN GROUND section of the DuPage County Division of Transportation Traffic Signal Special Provisions contained in this Contract. All conduit installed underground shall be fully buried a minimum depth of thirty (30) inches.

This work will be paid for at the contract unit price per foot for COILABLE NON-METALLIC CONDUIT (CNC) 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 cost of this item.

EQ-21 ELECTRIC CABLE IN CONDUIT, NO. 14 1/C

EQ-22 ELECTRIC CABLE IN CONDUIT, NO. 14 2/C
EQ-23 ELECTRIC CABLE IN CONDUIT, NO. 14 3/C
EQ-24 ELECTRIC CABLE IN CONDUIT, NO. 14 5/C
EQ-25 ELECTRIC CABLE IN CONDUIT, NO. 14 7/C
EQ-26 ELECTRIC CABLE IN CONDUIT, NO. 14 2/C, TWISTED, SHIELDED
EQ-27 ELECTRIC CABLE IN CONDUIT, NO. 6 2/C
EQ-28 ELECTRIC CABLE IN CONDUIT, NO. 10 2/C
EQ-29 ELECTRIC CABLE IN CONDUIT, NO. 20 3/C, TWISTED, SHIELDED

The items listed above shall comply with Section 873, Article 1088.01, and Article 1076.04 of the Standard Specifications for Road and Bridge Construction as revised in the DuPage County Traffic Signal Special Provisions included in this contract.

EQ-30 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 gauge solid bare copper conductor, gas-injected foam high density polyethylene (FHDPE) insulation, 95%(min) tinned copper braided shield, and black polyvinyl chloride outer covering. The nominal outside diameter shall be 0.274 inches. Amphenol 31-71032 (or equivalent) BNC plug connectors shall be used at both the video junction box and traffic control cabinet ends of the cable.

EQ-31 ELECTRIC CABLE IN CONDUIT, NO. 18, 3/C for VIDEO

This work shall consist of furnishing and installing a Belden YR52311 cable, or approved equal, in existing and/or new conduit, between an Autoscope Solo Terra camera and the traffic signal cabinet.

A Harting HAN 3 A connector, or approved equivalent, is required to connect this cable to an Autoscope Solo Terra camera. The cost of furnishing and installing this connector is included in this pay item.

Basis of Payment: This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, NO. 18, 3/C, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operation.

EQ-32 ELECTRIC CABLE IN CONDUIT, COMMUNICATION, NO. 16, 5½ PAIR

This work shall consist of furnishing and installing a Belden YC46223 communications cable, or approved equal, in existing and/or new conduit. The cable shall consist of 16 AWG stranded bare copper twisted-pair conductors, with PVC insulation, and PVC jacket with nylon ripcord. The nominal outside diameter shall be 0.502-inch.

The communications cable, No. 16, 5½ pair shall be spliced to the MVP Cable in the base of the signal mast arm pole on which the MVP is mounted. The MVP cable shall be provided by the MVP manufacturer. The communications cable shall be provided by the Contractor. The conductors from the two cables shall be spliced using the 3M Scotchlok gel-filled splice tabs (part number 314). The individual splices shall be bundled together and protected with 3M vinyl mastic pads. The cost of all work associated with splicing the cables shall be considered included in the cost of the communications cable, No. 16, 5½ pair.

Basis of Payment: This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, COMMUNICATION NO. 16, 5½ PAIR, which price shall be payment in full for furnishing, installing and making all electrical connections necessary for proper operation.

EQ-33 FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 24 FIBER (12 MULTIMODE AND 12 SINGLEMODE)

EQ-34 FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 36 FIBER (12 MULTIMODE AND 24 SINGLEMODE)

EQ-35 FIBER OPTIC CABLE IN CONDUIT, 24 SINGLEMODE

These items shall consist of furnishing and installing Fiber Optic Cable in conduit, No. 62.5/125, of the number of fibers specified (24 fibers or 36 fibers) at a location indicated by the Agency. This work shall be in accordance with the FIBER OPTIC CABLE section of the DDOT Traffic Signal Special Provisions contained in this Contract. This item shall include all necessary cable slack, cable termination and testing, distribution enclosures, break-out kits, connectors, splices, pigtail assemblies and all other materials, hardware, and labor necessary to complete the installation as directed by the Agency.

EQ-36 TRANSCEIVER - FIBER OPTIC

This item shall consist of furnishing and installing a fiber optic transceiver for an existing controller. This item shall comply with Section 864 of the Standard Specifications for Road and Bridge Construction, and shall include 2 each fiber optic modems and all necessary associated components to provide database upload/download capabilities, as well as the other features of the ECONOLITE “ARIES” software or central signal system software as directed by the Agency.

EQ-37 SERVICE INSTALLATION, POLE MOUNT

EQ-38 SERVICE INSTALLATION, GROUND MOUNT

This item shall comply with the ELECTRICAL SERVICE INSTALLATION section of the DuPage County Division of Transportation Traffic Signal Special Provisions contained in this Contract.

This work 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 for a ground mount service installation and all service and ground cables shall be paid for separately.

EQ-39 CONCRETE FOUNDATION, TYPE A

The items listed above shall comply with Section 734, Article 1020, Article 1094.02, and Article 1087.01 of the Standard Specifications for Road and Bridge Construction. These items shall include anchor bolts, nuts, washers, and ground rods as specified for the type of post, pole, or cabinet being installed at the location.

EQ-40 CONCRETE HANDHOLE

EQ-41 CONCRETE HEAVY DUTY HANDHOLE

The items listed above shall comply with Section 814 and Article 1088.06 of the Standard Specifications for Road and Bridge Construction.

EQ-42 REBUILD EXISTING HANDHOLE

This item shall comply with Section 814 and Article 1088.06 of the Standard Specifications for Road and Bridge Construction. This pay item shall include any of the following: rebuilding, raising, and/or re-aligning any type of handhole at a location designated by the Agency. This item shall include steel hooks, frame, cover, concrete, and all labor and equipment necessary to complete construction to the satisfaction of the Agency.

EQ-43 DRILL EXISTING HANDHOLE

This item shall comply with Section 879 of The Standard Specifications for Road and Bridge

Construction.

EQ-44 ROTATE SIGNAL PHASING AT AN EXISTING TRAFFIC SIGNAL INTERSECTION

This item shall consist of revising the traffic signal phasing at an existing traffic signal intersection. The proposed sequence of operation shall conform with the current "Standard Phase Designation Diagrams and Phase Sequences" Highway Standard, the District's phase diagrams and notes, the District's chart sequence of operations or as directed by the Agency. The phase rotation shall consist of the following items:

1. Modify all incoming field wiring to provide the new sequence of operations which includes all signal heads, pedestrian heads, internally illuminated signs, emergency vehicle preemption, confirmation beacons, vehicle detectors, pedestrian detectors and system detectors.
2. Modify the controller programming and phase overlaps to provide the proposed sequence of operations.
3. All back panel modifications as required to provide the proposed sequence of operations and system detection.
4. The Contractor shall provide five (5) copies (11" x 17") of revised cabinet wiring diagrams.
5. The Contractor shall provide revised cable logs indicating the number of each cable, the field location the cable is terminated at, and all cables must be tagged with an I.D. number that corresponds with the revised cable log.

EQ-45 VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION)

This item shall comply with the VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION) section of the DDOT Traffic Signal Special Provisions contained in this Contract, with the exception noted below.

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 controller or similar device. This work shall consist of furnishing and installing an Autoscope Solo Terra or approved equal video vehicle detection system at one signalized intersection, including all necessary hardware, cable and accessories necessary to complete the installation in accordance with the manufacturer’s specifications.

This item shall consist of up to four (4) integrated machine vision processor sensors (MVPs), an electrical interface panel, and a detector interface card. The system shall also include a ten-inch color VGA monitor with BNC connector for video input. A simple multi-camera video switching unit shall be provided to select video input to the monitor.

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 required, installing the system at one signalized intersection, and placing the system in operation to the satisfaction of the Agency. This item shall include a cabinet-mounted video interface panel with a serial port and/or Gigabit Ethernet port.

EQ-46 SPLICE FIBER OPTIC CABLE IN CABINET

This item shall comply with the SPLICE FIBER OPTIC CABLE IN CABINET section of the DDOT Traffic Signal Special Provisions contained in this Contract.

Basis of Payment: This work shall be paid for at the contract unit price each for SPLICE FIBER OPTIC CABLE 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 Agency.

EQ-47 TERMINATE FIBER IN CABINET

This item shall comply with the TERMINATE FIBER IN CABINET section of the DDOT Traffic Signal Special Provisions contained in this Contract.

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.

EQ-48 REMOTE-CONTROLLED VIDEO SYSTEM

This pay item shall include providing and installing a remote-controlled video system at a location designated by the Agency. The item shall comply with the REMOTE CONTROLLED VIDEO SYSTEM section of the DDOT Traffic Signal Special Provisions included in this contract.

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 equipment required, installing the system complete and in place, and placing the system in operation to the satisfaction of the Agency.

EQ-49 LED INTERNALLY ILLUMINATED STREET NAME SIGN

This item shall comply with the LED INTERNALLY ILLUMINATED STREET NAME SIGN section of the DDOT Traffic Signal Special Provisions contained in this Contract.

This work shall be paid for at the Contract unit price each for furnishing and installing LED INTERNALLY ILLUMINATED STREET NAME SIGN, complete in place, to the satisfaction of the Agency.

EQ-50 UNINTERRUPTIBLE POWER SUPPLY (UPS), Special

This item shall comply with the UNINTERRUPTIBLE POWER SUPPLY (UPS), Special section of the DDOT Traffic Signal Special Provisions contained in this Contract.

This work shall be paid for at the Contract unit price each for furnishing and installing UNINTERRUPTIBLE POWER SUPPLY (UPS), Special. The price shall include the UPS/Inverter unit, Bypass Switch, Batteries, Cabinet, wiring harnesses, and all associated equipment and materials necessary for proper operation.

EQ-51 RELAMP EXISTING TRAFFIC SIGNAL WITH LED MODULES

This item shall consist of furnishing and installing LED signal modules at an existing traffic signal. All vehicle signals (circular and arrow indications) and all pedestrian signals (Walk and Don't Walk indications) at the intersection shall be relamped as part of this pay item. Pedestrian signal heads shall be relamped with countdown modules. At signals interconnected with the railroad, the countdown signal module shall not be used. All LED modules shall comply with the SIGNAL HEAD LIGHT EMITTING DIODE (LED) and PEDESTRIAN COUNTDOWN SIGNAL HEAD, LIGHT EMITTING DIODE (LED) sections of the DDOT Traffic Signal Special Provisions contained in this Contract.

This work shall be paid for at the Contract unit price each for RELAMP EXISTING TRAFFIC SIGNAL WITH LED MODULES, which shall include furnishing and installing LED signal modules as replacements for all existing LED vehicle and pedestrian signals at one signalized

intersection. The price shall include the proper aiming of the signals, and all necessary connections and hardware, complete in place, to the satisfaction of the Agency.

EQ-52 OUTDOOR RATED NETWORK CABLE

This item shall comply with the OUTDOOR RATED NETWORK CABLE section of the DDOT Traffic Signal Special Provisions contained in this Contract.

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 RJ-45 connectors, and making all connections necessary for proper operation to the satisfaction of the Agency.

EQ-53 TRAFFIC SIGNAL GROUNDING AND ELECTRICAL SERVICE UPGRADE

This item shall comply with the ELECTRICAL SERVICE INSTALLATION, GROUNDING OF TRAFFIC SIGNAL SYSTEMS, and GROUNDING EXISTING HANDHOLE FRAME AND COVER sections of the DuPage County Division of Transportation Traffic Signal Special Provisions contained in this Contract.

This work will generally include:

- Replacement of the electrical service entrance equipment and cable
- New grounding of the service
- New feeder conductors from the service disconnect to the controller cabinet
- Cabinet grounding modifications
- Supplementary ground electrodes at handholes
- Extension of the equipment ground wires to all poles, posts, handholes, etc.
- Bonding of equipment ground to all exposed metal parts
- Testing and documentation

The Contractor shall be responsible for all coordination with the electrical utility and shall keep the disruption of the operation of the traffic signal to a momentary outage while the final connections are made.

This work shall be paid for at the contract unit price each for TRAFFIC SIGNAL GROUNDING AND ELECTRICAL SERVICE UPGRADE, which shall be payment in full for furnishing and installing all necessary cable and equipment to complete the system grounding of an intersection and provide a new electrical service installation.

EQ-54 MODIFY EXISTING CONTROLLER CABINET

This item shall consist of modifying an existing controller cabinet to accommodate new and/or relocated traffic signal equipment.

General: The work shall be performed according to Section 895 of the “Standard Specifications”, the details shown on the plans, and DDOT Traffic Signal Specifications.:

The work shall include all modifications and peripheral work necessary to accommodate the new or relocated traffic signal equipment, which may include but is not limited to the addition of signal phases, relocation of the EVP phasing unit, installation and configuration of an existing UPS unit, installation of an existing Layer II Switch, or remote controlled video system items to be installed in the existing cabinets.

Additionally all necessary materials, parts, equipment and labor required to modify the controller cabinet to accommodate the new or relocated equipment or phasing, shall be included in the unit cost of this pay item.

This work will be paid for at the contract unit price per each for MODIFY EXISTING CONTROLLER CABINET. The unit price shall include furnishing and installing all necessary parts and materials required to modify the existing controller cabinet to accommodate the new and/or relocated traffic signal equipment.

EQ-55 INSTALL TEMPORARY TRAFFIC SIGNAL, FOUR APPROACHES OR LESS

Under this item, for a unit price per installation, as shown in the Schedule of Prices and directed by the Agency in writing, the Contractor shall install a temporary traffic signal. The intent of this item is to restore an existing signalized location to operation and not for the construction of at a new or proposed location. This item shall comply with the TEMPORARY TRAFFIC SIGNAL INSTALLATION section of the DDOT Traffic Signal Special Provisions contained in this Contract, with the following exceptions: All equipment for the temporary traffic signal shall be new, including signal heads, LED modules, signal cabinet, controller, and related equipment. If required, the vehicular detection system and uninterruptible power supply (UPS) will be paid for separately.

a. Plans for the temporary traffic signal shall be supplied by the Agency.

b. The temporary traffic signal shall be installed in compliance with Department of Transportation Standard No. 880001 "Details of Span Wire Mounted Signals and Flashing Beacon Installation."

c. All parts of the temporary traffic signal shall become property of the DuPage County Division of Transportation upon acceptance of the installation.

This work shall be paid for at the contract unit price each for INSTALL TEMPORARY TRAFFIC SIGNAL, FOUR APPROACHES OR LESS which shall include all costs for providing and installing the necessary equipment, in accordance with the plans, as directed by the Agency. If required, the vehicular detection system and uninterruptible power supply (UPS) will be paid for separately.

EQ-56 REMOVE EXISTING TEMPORARY TRAFFIC SIGNAL, FOUR APPROACHES OR LESS

This work will consist of removing all equipment, poles, down guys, mounting hardware, signal heads, controller cabinets and any other equipment associated with the specified temporary signal installation, and delivering the equipment to the DuPage County Division of Transportation yard in Wheaton. All holes caused by the removal of wood poles shall be backfilled with sand as directed by the Agency. This work will be paid for at the Contract unit price each for REMOVE EXISTING TEMPORARY TRAFFIC SIGNAL, FOUR APPROACHES OR LESS which will be payment in full for all work.

EQ-57 PAINT TRAFFIC SIGNAL POST AND BASE

a. Description - This work shall consist of cleaning and painting an existing traffic signal post and base.

b. Materials - Paint shall be a two-coat system consisting of Rust Destroyer paint primer, and Benjamin Moore Super Spec HP Urethane Alkyd Gloss Enamel P22 finish, or an approved equivalent by the Agency.

c. Cleaning - Prior to painting, the signal post shall be cleaned by removing all rust, foreign material, dirt, oil, and all loose or peeling paint. Cleaning shall be accomplished by the use of metal brushes and scrapers or other effective means meeting the approval of the Agency. A sand blast may be used provided results are equal to the best results obtainable by hand methods. Oil or grease shall be removed by the use of a suitable solvent or equally effective method. Bristle or wood fiber brushes shall be used for removing loose dust.

d. Painting - After cleaning, one coat of an approved primer shall be placed to all areas where the old paint has been removed or damaged. On surfaces where small areas of metal or closely spaced intervals are exposed, the primer shall consist of a complete coating. The signal post shall be painted with two coats of yellow enamel. Rollers or brushes must be used to apply the primer and paint. Spray painting will not be allowed.

e. Basis of Payment - This work will be paid for at the contract price each for PAINT TRAFFIC SIGNAL POST & BASE, which price shall be payment in full for all labor, equipment and materials necessary to paint the existing traffic.

EQ-58 PAINT MAST ARM & POST
EQ-59 COMBINATION MAST ARM & POLE

a. Description - This work shall consist of cleaning and painting a mast arm post or combination mast arm and post.

b. Materials – Paint shall be TNEMEC with a compatible primer, or an approved equivalent.

c. Cleaning - The mast arms or combination mast arms shall be cleaned by removing all rust, foreign material, dirt, oil, and all loose or peeling paint. Cleaning shall be accomplished by the use of metal brushes and scrapers or other effective means meeting the approval of the Agency. The sand blast may be used provided results are equal to the best results obtainable by hand methods. Oil or grease shall be removed by the use of a suitable solvent or equally effective method. Bristle or wood fiber brushes shall be used for removing loose dirt.

d. Painting - After cleaning, one coat of an approved primer shall be applied to all areas where the old paint has been removed or damaged. On surfaces where small areas of metal at closely spaced intervals are exposed, the primer shall consist of a complete coating. Mast arms and poles shall be painted with two coats of paint. The mast arms and poles shall be painted with hi-build vinyl paint to conform to 99R Illinois DOT State Brown Ameron or equivalent. Rollers or brushes must be used to apply the primer and paint. Spray painting will not be allowed.

e. Basis of Payment - This work will be paid for at the contract unit price each for PAINT MAST ARM & POLE or COMBINATION MAST ARM & POLE, which price shall be payment in full for all labor, equipment and materials necessary to paint the mast arm and post or combination mast arm and post.

EQ-60 TRAFFIC SIGNAL POST, 10 FT

EQ-61 TRAFFIC SIGNAL POST, 14 FT
EQ-62 TRAFFIC SIGNAL POST, 16 FT
EQ-63 TRAFFIC SIGNAL POST, 18 FT

This item shall comply with the TRAFFIC SIGNAL POST section of the DDOT Traffic Signal Special Provisions contained in this Contract.

This work shall be paid for at the Contract unit price each for furnishing and installing TRAFFIC SIGNAL POST of the size indicated, complete in place, to the satisfaction of the Agency.

EQ-64 RELOCATE EXISTING TRAFFIC SIGNAL HEAD

This item shall consist of all labor, materials, and equipment to relocate an existing traffic signal head to an existing traffic signal post or mast arm, or to a new traffic signal post or mast arm. This item shall be paid at the contract unit price, RELOCATE EXISTING TRAFFIC SIGNAL HEAD, each.

EQ-65 RELOCATE EXISTING PEDESTRIAN PUSHBUTTON

This item shall consist of all labor, materials, and equipment to relocate an existing pedestrian pushbutton to an existing traffic signal post or mast arm, or to a new traffic signal post or mast arm. This item shall be paid at the contract unit price, RELOCATE EXISTING PEDESTRIAN PUSHBUTTON, each.

EQ-66 BATTERY (SET), UPS

This work will consist of providing and installing a set of new batteries to operate with the UPS/BBS system, per manufacturer's recommendations and meet included specifications and special provisions. Old and new batteries shall not be mixed together. Item includes all disposal costs for old/removed batteries. This item is paid per location.

EQ-67 LAYER II (DATA LINK) SWITCH

This item shall consist of all labor, materials, and equipment to provide and install a layer II (data link) switch in an existing traffic signal cabinet. The layer II (data link) switch shall be a Cisco Catalyst 2950 or 2955 Series Intelligent Ethernet Switch (DuPage County), Cisco IE 4000 Series Models (City of Naperville), or approved equal.

EQ-68 LAYER III (NETWORK) SWITCH

This item shall consist of all labor, materials, and equipment to provide and install a layer III (network) switch in an existing traffic signal cabinet. The layer III (network) switch shall be a Cisco Catalyst 2950 or 2955 Series Intelligent Ethernet Switch (DuPage County), Cisco IE 4000 Series Models (City of Naperville), or approved equal.

EQ-69 RELAMP COMBINATION STREET LIGHTING - LED

This item shall consist of all labor, materials, and equipment to relamp a mast arm mounted combination luminaire which includes washing all glassware and reflectors and replacing the lamp. The lighting shall be replaced in-kind with an equivalent level of lumens. The Agency shall specify the locations for combination street lamp relamping. This item shall be paid at the contract unit price, RELAMP COMBINATION STREET LIGHTING - LED, each.

EQ-70 RELAMP COMBINATION STREET LIGHTING - HPS

This item shall consist of all labor, materials, and equipment to relamp a mast arm mounted combination luminaire which includes washing all glassware and reflectors and replacing the

lamp. The lighting shall be replaced in-kind with an equivalent level of wattage. The Agency shall specify the locations for combination street lamp relamping. This item shall be paid at the contract unit price, RELAMP COMBINATION STREET LIGHTING - HSP, each.

ITEM CH – CENTURY HILL STREET LIGHTING DISTRICT

The Century Hill Street Lighting District provides street light service within the Century Hill subdivision in Naperville, Illinois. The service area is located in the area between Chicago Avenue, Burlington Railroad, Naper Boulevard and the Naperville Country Club.

The maintenance responsibility will be accomplished on an on-call basis. No routine patrol of the subdivision is required. When an outage is reported, the Contractor shall have seven (7) days to respond to perform and investigation and perform repairs to the above ground equipment in accordance with the following pay items.

Should the initial investigation, result in a determination that the cause of the failure is a lack of power or other underground situation or a pole needs to be replaced, that work shall be paid to the Contractor on a Force Account Basis in accordance with Article 109.04 (b) of the Standard Specifications.

CH-1 RESIDENTIAL STREET LIGHT REPAIR, POST TOP MOUNTED
CH-2 RESIDENTIAL STREET LIGHT REPAIR, LUMINIARIE ARM MOUNTED

This item shall consist of responding to a reported street light outage within seven (7) days to investigate to determine the nature of the problem and repair any above ground faults including but not limited to issues related to bulb outages, ballasts, fuses, or wiring in the pole. This item shall include all labor, parts, and equipment necessary to restore the street light to operation.

Should the initial investigation, result in a determination that the cause of the failure is a lack of power or other underground situation or a pole needs to be replaced, all work shall be paid to the Contractor on a Force Account Basis in accordance with Article 109.04 (b) of the Standard Specifications.

These items shall be paid for at the Contract unit price each for RESIDENTIAL STREET LIGHT REPAIR, of the type specified, which price shall be payment in full for investigating, repairing, and restoring the residential street light, of the type specified, to operation including all labor, equipment and materials necessary.

○ **SUMMARY OF QUANTITIES**

SUMMARY OF QUANTITIES

County: **DuPage**
Local Public Agency: **DuPage County DOT**
Section: **18-TSMTC-01-GM**
Route: **Various**

Item No.	Items	Unit	Aurora Quantity	DuPage Quantity	Lombard Quantity	Naperville Quantity	Total Quantity
T-1	TRAFFIC SIGNAL LOCATION	EACH	3048	7700	768	2256	13772
T-2	TEMPORARY TRAFFIC SIGNAL LOCATION	EACH		24		48	72
T-3	FLASHING BEACON, OVERHEAD MOUNT	EACH		144		96	240
T-4	FLASHING BEACON, LOW MOUNT	EACH		648		432	1080
T-5	VEHICLE COUNT STATION	EACH		24			24
T-6	VIDEO COMMUNCATIONS CABINET	EACH		1			1
T-7	LAYER II (DATALINK) SWITCH	EACH		1		29	30
T-8	LAYER III (NETWORK) SWITCH	EACH		1		4	5
T-9	REMOTE CONTROLLED VIDEO SYSTEM	EACH		24			24
T-10	PEDESTRIAN CROSSING SIGNAL LOCATION	EACH		24	72		96
T-11	FIRE STATION SIGNAL LOCATION	EACH			48		48
L-1	LUMINAIRE	EACH	4656	22320		4752	31728
L-2	UNDERPASS LIGHTING	EACH		3408			3408
L-3	SIGN LIGHTING	EACH		24			24
L-4	WASHINGTON STREET NO PARKING SIGNS SYSTEM COMPLETE	EACH				24	24
PS-1	PUMP STATION	EACH		48			48
EW-1	BUDGETARY ALLOWANCE FOR EXTRA WORK	$	100,000	100,000	10,000	20,000	230,000
KD-1	BUDGETARY ALLOWANCE FOR KNOCKDOWNS	$		600,000	30,000	30,000	660,000
EQ-1	SIGNAL HEAD, LED, I-FACE, 1-SECTION	EACH	4	4			8
EQ-2	SIGNAL HEAD, LED, I-FACE, 3-SECTION	EACH	4	18		2	24
EQ-3	SIGNAL HEAD, LED, 1-FACE, 4-SECTION	EACH	4	4			8
EQ-4	SIGNAL HEAD, LED, 1-FACE, 5-SECTION	EACH	4	18		2	24
EQ-5	PED HEAD, LED	EACH		4		2	6
EQ-6	PED HEAD, LED, COUNTDOWN	EACH	8	24		2	34
EQ-7	AUDIBLE/ACCESSIBLE PEDESTRIAN SIGNALS (APS) (COMPLETE INTERSECTION)	EACH	1	4			5
EQ-8	TRAFFIC SIGNAL BACKPLATE	EACH	24	18		3	45
EQ-9	TRAFFIC SIGNAL BACKPLATE, RETROREFLECTIVE	EACH	24	18			42

SUMMARY OF QUANTITIES

Item No.	Items	Unit	Aurora Quantity	DuPage Quantity	Lombard Quantity	Naperville Quantity	Total Quantity
EQ-10	EMERGENCY VEHICLE PREEMPTION SYSTEM	EACH	1	1			2
EQ-11	FAC IN TYPE IV CABINET, NEMA TS-2	EACH	1	4			5
EQ-12	INSTALL EXISTING TRAFFIC SIGNAL CABINET	EACH	2	4			6
EQ-13	INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER	EACH	2	4			6
EQ-14	FULL ACTUATED CONTROLLER	EACH	1	4			5
EQ-15	INSTALL UPDATED PROM, LOCAL OR MASTER	EACH	2	5			7
EQ-16	UPGRADE EXISTING LOCAL CONTROLLER SOFTWARE	EACH	2	5			7
EQ-17	DETECTOR LOOP	FOOT	500	2500	300	600	3900
EQ-18	PEDESTRIAN PUSHBUTTON	EACH	24	16		10	50
EQ-19	GALVANIZED STEEL CONDUIT IN GROUND, 2 INCH	FOOT	100	100		100	300
EQ-20	COILABLE NON-METALLIC CONDUIT IN GROUND, 2 INCH	FOOT	500	100			600
EQ-21	ELECTRIC CABLE IN CONDUIT, NO. 14 1/C	FOOT	500	250			750
EQ-22	ELECTRIC CABLE IN CONDUIT, NO. 14 2/C	FOOT	500	500		250	1250
EQ-23	ELECTRIC CABLE IN CONDUIT, NO.14 3/C	FOOT	1000	1000		250	2250
EQ-24	ELECTRIC CABLE IN CONDUIT, NO.14 5/C	FOOT	1000	1000		250	2250
EQ-25	ELECTRIC CABLE IN CONDUIT, NO.14 7/C	FOOT	1000	1000		250	2250
EQ-26	ELECTRIC CABLE IN CONDUIT, NO.14 2/C TW,SH	FOOT	1000	250		250	1500
EQ-27	ELECTRIC CABLE IN CONDUIT, NO. 6, 2/C	FOOT	500	250			750
EQ-28	ELECTRIC CABLE IN CONDUIT, NO. 10, 2/C	FOOT	100	250			350
EQ-29	ELECTRIC CABLE IN CONDUIT, NO. 20, 3/C, TW, SH	FOOT	500	250			750
EQ-30	ELECTRIC CABLE IN CONDUIT, COAXIAL	FOOT	100	500			600
EQ-31	ELECTRIC CABLE IN CONDUIT, NO.18, 3/C, VIDEO	FOOT	500	250			750
EQ-32	ELECTRIC CABLE IN CONDUIT, COMM, NO. 16 51/2 PAIR	FOOT	100	100			200
EQ-33	FIBER OPTIC IN CONDUIT, 12 MM, 12 SM	FOOT		2000			2000
EQ-34	FIBER OPTIC IN CONDUIT, 12 MM, 24 SM	FOOT	2000	2000			4000
EQ-35	FIBER OPTIC IN CONDUIT, 24 SM	FOOT		2000			2000
EQ-36	TRANSCEIVER, FIBER OPTIC	EACH	2	4			6
EQ-37	SERVICE INSTALLATION, POLE MOUNT	EACH	2	4			6
EQ-38	SERVICE INSTALLATION, GROUND MOUNT	EACH	1	4			5
EQ-39	CONCRETE FOUNDATION, TYPE A	FOOT	20	20			40

SUMMARY OF QUANTITIES

Item No.	Items	Unit	Aurora Quantity	DuPage Quantity	Lombard Quantity	Naperville Quantity	Total Quantity
EQ-40	CONCRETE HANDHOLE	EACH	4	4		1	9
EQ-41	CONCRETE HEAVY DUTY HANDHOLE	EACH	4	4		2	10
EQ-42	REBUILD EXISTING HANDHOLE	EACH	4	8			12
EQ-43	DRILL EXISTING HANDHOLE	EACH	10	8		2	20
EQ-44	ROTATE SIGNAL PHASING AT EXISTNG TS	EACH	5	5			10
EQ-45	VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION)	EACH	1	3			4
EQ-46	SPLICE FIBER OPTIC CABLE IN CABINET	EACH	40	20			60
EQ-47	TERMINATE FIBER IN CABINET	EACH	40	20			60
EQ-48	REMOTE CONTROLLED VIDEO SYSTEM	EACH	1	2			3
EQ-49	LED INTERNALLY ILLUMINATED STREET NAME SIGN	EACH	2	4			6
EQ-50	UNINTERRUPTIBLE POWER SUPPLY, SPECIAL	EACH	1	5			6
EQ-51	RELAMP EXISTING TS WITH LED	EACH	1	60			61
EQ-52	OUTDOOR RATED NETWORK CABLE	FOOT	500	500			1000
EQ-53	TS GROUNDING AND ELECTRICAL SERVICE UPGRADE	EACH	1	2			3
EQ-54	MODIFY EXISTING CONTROLLER CABINET	EACH	4	4			8
EQ-55	INSTALL TEMPORARY TRAFFIC SIGNAL	EACH	1	1		1	3
EQ-56	REMOVE EXISTING TEMPORARY TRAFFIC SIGNAL	EACH		1			1
EQ-57	PAINT TRAFFIC SIGNAL POST AND BASE	EACH	4	10	12		26
EQ-58	PAINT MAST ARM AND POST	EACH	4	8	12		24
EQ-59	PAINT COMBINATION MAST ARM AND POLE	EACH	4	8	12		24
EQ-60	TRAFFIC SIGNAL POST, 10 FT	EACH	2	4		2	8
EQ-61	TRAFFIC SIGNAL POST, 14 FT	EACH	2	8			10
EQ-62	TRAFFIC SIGNAL POST, 16 FT	EACH	2	40		2	44
EQ-63	TRAFFIC SIGNAL POST, 18 FT	EACH	2	8		2	12
EQ-64	RELOCATE EXISTING TRAFFIC SIGNAL HEAD	EACH	10	40			50
EQ-65	RELOCATE EXISTING PEDESTRIAN PUSHBUTTON	EACH	10	20			30
EQ-66	BATTERY (SET), UPS	EACH	40	5			45
EQ-67	LAYER II (DATALINK) SWITCH	EACH	1	4		2	7
EQ-68	LAYER III (NETWORK) SWITCH	EACH	1	2			3
EQ-69	RELAMP COMBINATION STREET LIGHTING - LED	EACH		4		10	14

SUMMARY OF QUANTITIES

Item No.	Items	Unit	Aurora Quantity	DuPage Quantity	Lombard Quantity	Naperville Quantity	Total Quantity
EQ-70	RELAMP COMBINATION SREET LIGHTING - HPS	EACH		4		10	14
CH-1	RESIDENTIAL STREET LIGHT REPAIR, POST TOP	EACH		24			24
CH-2	RESIDENTIAL STREET LIGHT REPAIR, LUMINAIRE ARM	EACH		24			24

NOTE: NO SPECIALTY ITEMS HAVE BEEN DESIGNATED.

- **DuPAGE COUNTY**

- **EQUIPMENT LIST**
- **SCHEDULE OF ROUTINE MAINTENANCE PAY ITEMS** [redacted]

TRAFFIC SIGNAL MAINTENANCE CONTRACT

EQUIPMENT LIST

DuPage County

The following is a listing of the equipment that the Contractor shall be responsible to maintain under the Contract with DuPage County. The approximate number and type of equipment is listed to provide the Contractor with a breakdown of the inventory for bidding purposes. This list is comprised of existing equipment owned and/or maintained by the DuPage County Division of Transportation, and new equipment planned for construction and/or installation during the term of this Contract. The list includes traffic signal locations, street lighting locations, vehicle counting stations, as well as a listing of the type and number of signal appurtenances. The number of traffic signal locations varies due to construction, maintenance transfers, new installations, maintenance agreement revisions, and removals. The equipment list shall not be considered all-inclusive or comprehensive in any way, and the DuPage County Division of Transportation shall not be held accountable for any errors on the list.

It should be noted that the DuPage County Division of Transportation does have maintenance of traffic signal and street lighting facilities on roads that are not under the jurisdiction of the County. These locations are maintained for the municipalities and state through intergovernmental agreements. All work orders, payments and invoicing for these locations, which the County has maintenance responsibility, will be administered through this Contract by the County and not the agency with jurisdiction of the road.

Traffic Signals under DuPage County Jurisdiction maintained by DuPage County

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
31st Street	Concord Drive / Trinity Lane				8		4		4		4	2			1	1	1					1	1		
31st Street	Highland Avenue				8		12			12	10	4		1	1		1			4	4	2			
31st Street	Highland Parkway	10	2	2				2			2				1		1					1			
31st Street	IL 83 NB Ramps (East)				9	2				2	2						1					1	1		
31st Street	IL 83 SB Ramps (West)				9	2				2	2				1		1					1			
31st Street	Midwest Road				4		8			4	3	4			1		1					1			
31st Street	Midwestern Univ. / Avenue LaTours				12		6			8	8	4			1	1	1								
31st Street	Regent Dr. / St. Paschal Drive				10		4		4		3	2		1	1		1					2	1		
31st Street	York Road				4		8		8		4	4			1		1								
55th Street	Cass Avenue				7		10			8					1										
55th Street	Clarendon Hills Road				8	2	4			4	4	2			1	1	1					1			
55th Street	Fairview Avenue	10		4						8	6				1		1								
55th Street	Garfield Avenue				2		8		8		4	2			1		1					1	1		
55th Street	Grant Street	2		8					8		4	2	2		1		1					2	2		
55th Street	Holmes Avenue				4		8			8	7	4			1		1					1			
55th Street	IL 83 NBD Ramps (East)				9		2					2			1		1					2	1		
55th Street	IL 83 SBD Ramps (West)				7		2					2		1	1		1					1			
55th Street	Madison Street	2		8						8	4	2			1		1					1	1		
55th Street	Main Street DG	6	2	6										1	1		1								
63rd Street	Belmont Road				2	4	8			8	4	2			1		1					1			
63rd Street	Cass Avenue				8		8			8	4	3		1	1		1					2			2
63rd Street	Clarendon Hills Road				6		8		8		5	2			1		1					1			
63rd Street	Dunham Road	6		8				8			5	2			1		1						1		
63rd Street	Fairview Avenue	6		8								2			1		1					1	1		
63rd Street	Hinsdale Lake Commons SC / Americana				6		8		4		3	2			1		1					1			
63rd Street	I-355 NBD Ramps (East)				13	1									1		1					2			
63rd Street	I-355 SBD Ramps (West)				11	1	2								1		1					1			
63rd Street	Leonard Avenue / Westwood SC				5		6		2		2	2			1		1					1			
63rd Street	Madison Street				8		2		2		2	2			1		1								
63rd Street	Main Street DG				4		8		8		5	4			1		1			4		1	1		
63rd Street	Ridge Road	8		4				4			3	2			1		1					1			2
63rd Street	Williams Street				2		8		8		4	2			1		1					1			
63rd Street	Woodward Avenue	2	4	8				8			4	2			1		1					1	1		
75th Street	Adams Street				19					8	8	4	4		1	1	1					1			
75th Street	Beebe Drive				14		6		8		4	4			1		1					1			

Traffic Signals under DuPage County Jurisdiction maintained by DuPage County

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
75th Street	Book Road				3		8			8	8	2			1		1					1			
75th Street	Cass Avenue				12		10			8	8	4	4	1	1	1	1					2			
75th Street	Clarendon Hills Road				11		4		8		4				1		1								
75th Street	Dunham Road				16		4			8	7	4	2		1	1	1					1			
75th Street	Exner Road / Williams Street				8		4	8			7	2			1		1					1			
75th Street	Fairmont Avenue	6		6				4			3	2			1		1					1			
75th Street	Fairview Avenue				12		4		8		8	2			1		1					1			
75th Street	Fort Hill Drive				11				4		3	2			1		1					1			
75th Street	Greene Road				8		4		8		16	2			1		1					1			
75th Street	I-355 NBD Ramps (East)				13	1			4		4				1		1					1			
75th Street	I-355 SBD Ramps (West)				16				4		4			1	1		1					2			
75th Street	Janes Avenue	10		8				8			5	4			1	1	1					1			
75th Street	Lemont Road				17		8			8	8	4	4		1	1	1					1			
75th Street	Lyman Avenue				11		2			4	4	2			1	1	1					1			
75th Street	Millbrook Lane				2		8		8		8				1		1					1			
75th Street	Modaff Road				2		8			8	4	2			1		1					1			
75th Street	Naper Boulevard				3		12		12		10	4			1		1					1			
75th Street	Olympus Drive				2		8			8	4	2			1		1					1			
75th Street	Plainfield Road				20		4			6	6	6	4		1	1	1					1			
75th Street	Plainfield-Naperville Road				4		8		8		4	4			1		1					1			
75th Street	Ranchview Drive				9		2		4		3	2			1		1					1			
75th Street	Washington Street				16		10			12		4		1	1	1	1					2			
75th Street	Wehrli Road				10		4		8		16	3			1		1					1			
75th Street	Woodridge Drive				16					6	4				1		1								
75th Street	Woodward Avenue	16		4				8			4	4			1		1			4		1			
87th Street / Boughton Road	Woodward Avenue				3		9			2	2	4			1	1	1					1			
Addison Road	Elizabeth Drive	8		4				8			4	2			1		1								
Addison Road	Green Meadow Drive	9						2			2				1		1								
Addison Road	Potter Street				10					4	3				1		1								
Army Trail Road	Bloomingdale Court SC	6		4				4			3	2			1		1			3		1			
Army Trail Road	Bloomingdale Road				8		6		8		8	4			1		1		1			1			
Army Trail Road	Butterfield Drive				5	4	8		8		4	4			1		1			4		1			
Army Trail Road	Cardinal Drive				4		8			8	4	4			1		1			4		1			
Army Trail Road	Clipper Drive				4		8		8		4	4			1		1					1			
Army Trail Road	County Farm Road				3		10			8	7	4			1	1	1					1			

Traffic Signals under DuPage County Jurisdiction maintained by DuPage County

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
Army Trail Road	Creekside Drive				13				4		3	2			1		1			3		1			
Army Trail Road	Fair Oaks Road				6		4		6		4	2			1		1					1			
Army Trail Road	Gary Avenue				8		12		8		4	4		1	1		1			4		2			
Army Trail Road	Gerber Road				8		4		8		4	3			1		1					1			
Army Trail Road	Gladstone Drive				2		12			8	8	4			1		1			4		1			
Army Trail Road	Glen Ellyn Road				12		6		8		8	4			1	1	1		1	4		1			
Army Trail Road	Home Depot Ent. / George Bell Dr.				20				8		6	4			1		1			4		1			
Army Trail Road	I-355 Ramps East	8												1	1		1		1			2			
Army Trail Road	I-355 Ramps West	7													1		1		1			1			
Army Trail Road	Knollwood Drive				4		8		8		4	4			1		1			4		1			
Army Trail Road	Kuhn Road / Madsen Road	6		10				8			4	4			1		1					1			
Army Trail Road	Meadow Road	12	4					4			3	2			1		1					1			
Army Trail Road	Merbach Drive				8		4		6		3	2			1		1					1			
Army Trail Road	Petersdorf Road				4		8		8		4	4			1		1			1					
Army Trail Road	Regency Drive				16				8		8	4			1		1			4		1			
Army Trail Road	Schmale Road / Skylark Drive	2	4	8				8			4	2			1		1		1	4		1			
Army Trail Road	Spring Valley Drive				6		4		8		4				1		1					1			
Army Trail Road	Springfield Drive				4		14		8		4	4			1		1			4		1			
Army Trail Road	Swift Road				14		6					4			1		1		1	4		1			
Army Trail Road	Woodlake Drive	4		8				8			4	2			1		1					1			
Bartlett Road	Pipers Drive / Bartlett Public Library	8		4				8			4	2			1		1					1			
Bartlett Road	Schick Road	7		2				2			2	2			1		1								
Bartlett Road	Struckman Boulevard	4		8				8			4	4			1		1								
Belmont Road	Curtiss Street				6		8			8	5	4			1		1					1			
Belmont Road	Haddow Avenue				9		4			4	3	2			1	1	1					1			
Belmont Road	Hobson Road / 59th Street	12		2				8			5	2			1	1	1								
Belmont Road	Prairie Avenue				8		4			6	4	2			1	1	1					1			
Bloomingdale Road	Armitage Avenue	8		4				8			6				1		1					1			
Bloomingdale Road	Edgewater Drive	5		4						4	3				1		1					1			
Bloomingdale Road	Fairfield Way / Founders Pointe				8		4		8		4			1	1		1					2			
Bloomingdale Road	Fullerton Avenue				8		8		8		8			1	1		1		1			2			
Bloomingdale Road	Glen Pointe Drive	6		8				8			4	1			1		1					1			
Bloomingdale Road	Greenway Drive				6		8		8		5	4			1		1					1			
Bloomingdale Road	North Brandon Drive	12		4				8			4				1		1					1			
Bloomingdale Road	Queen Bee School	7		2				4			3				1		1					1			

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Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
Bloomingdale Road	Schick Road				8		8			8	4	2			1		1					1			
Bloomingdale Road	Shorewood Drive	8		4				8			5			1	1		1					2			
Bloomingdale Road	Sidney Avenue	9						2			2				1		1					1			
Bloomingdale Road	St. Charles Road				8		8		2		2	4			1		1					1			
Bloomingdale Road	Stevenson Drive	4		2											1		1					1			
Cass Avenue	59th Street	4		8						8	7	4			1		1					1			
Cass Avenue	65th Street	2		8				8			4	2			1		1					1			
Cass Avenue	67th Street	2		8						8	6	2			1		1					1			
Cass Avenue	Concord Place / Ashbrook Court				5		8			8	6	1			1		1								
Cass Avenue	Plainfield Road				8		8			8	8	4	4		1	1	1					1			
Cass Avenue / Midwest Road	35th Street West	8		4						2	2	2			1		1					1			
Chicago Avenue	Charles Avenue	4		8				8			5	2			1		1					1			
Chicago Avenue	Oleson Drive	6	1	2				2			2	2			1		1					1			
College Road	Abbeywood Drive	8		4								3			1		1					1			
College Road	IBU Main Entrance				7		2		2		2	2			1		1					1			
College Road	Green Trails Drive				4		8			8	4	4			1		1					1			
College Road / Wehrli Road	Hobson Road				4		8		8			4			1		1								
County Farm Road	Birchbark Trail	4		8				8			6	2			1		1					1			
County Farm Road	County Complex Main Entrance				12		4		8		5	2			1		1		1			1			
County Farm Road	County Complex North Entrance				4		8		8		4	2			1		1					1			
County Farm Road	Jewell Road	4		8				8			4	2			1		1		1			1			
County Farm Road	Kelly Drive	2		8				8			4	2		1	1		1	1				2			
County Farm Road	Lies Road	6		8				8			6	2			1		1					1			
County Farm Road	Manchester Road				4		8		8		4	2		1	1		1					2			
County Farm Road	Ontarioville Road	5		7				10			9	4			1		1					1			
County Farm Road	Schick Road				4		8		8		8	4			1		1					1			
County Farm Road	St. Charles Road	3		10								2			1		1								
County Farm Road	Stearns Road / Greenbrook Blvd				3		10			8	6	2		1	1		1					1			
County Farm Road	Williams Street				6		6		8		6	2			1		1			4		1			
Devon Avenue	Prospect Avenue	8		4				8			5	2			1		1								
Diehl Road	AMC Theater Drive				12		6	8			7	4			1		1					1			
Diehl Road	Bulger Court / Weaver Parkway				10		6		8		6				1		1					1	1		
Diehl Road	Winfield Road				17		4		12		8	3			1		1					1			
Eola Road	Diehl Road				20		8		16		8	4			1	1	1					1			
Eola Road	Ferry Road / Bilter Road				6		8		8		4	2			1		1					1			

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Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
Eola Road	Jewel-Osco Entrance / Sheffer Road				2		13			8	4	2			1	1	1					1			
Eola Road	Liberty Street				2		12		8		8	4			1		1								
Eola Road	Metea H.S. N. Ent. / Mustang Way				11		4			4	4	3			1	1	1			3		1			
Eola Road	Molitor Road / Metea H.S. South Ent.				16		4		6		5	4		1	1	1	1			4		2			
Eola Road	North Aurora Road / Indian Trail Rd				2		14		8		4	2		1	1	1	1					2			
Eola Road	Stone Bridge Boulevard / Haverhill Drive	8		4				8			4	2			1		1					1			
Fabyan Parkway	Tech Boulevard				2		12		4		3	3			1		1								
Fairview Avenue	39th Street	8		1								2			1		1								
Fairview Avenue / Meyers Road	35th Street	8		4				4			3	2			1		1								
Ferry Road	Bella Vista Parkway / Chase Court	14		4				8			5				1		1					1			
Ferry Road	Raymond Drive	2		13				8			5	3			1		1					1			
Ferry Road	River Road				4		8		8		7	2			1		1					1			
Ferry Road	Torch Parkway	14		4				8			6				1		1					1			
Finley Road	Lacey Road	14						8			4	2			1		1								
Finley Road	Opus Place	4		8				6			4				1		1								
Gary Avenue	Central Avenue	8		8								4			1		1					1			
Gary Avenue	Elk Trail				6		8			4	4	2	4		1	1	1					1			
Gary Avenue	Fullerton Avenue / Hiawatha Drive				5		10			8	8	4	4		1	1	1		1			1			
Gary Avenue	Jewell Road				8		2			6	4	2			1		1					1			
Gary Avenue	Lawrence Avenue				4		8		8		7	4			1		1					1			
Gary Avenue	Lies Road				8		12			2	2	4	4	1	1	1	1		1			1			
Gary Avenue	Meijer Entrance / Glenwood Drive				4		8		8		4	2			1		1					1			
Gary Avenue	Schick Road	7		9				6			4	4			1		1		1			1			
Gary Avenue	Scott Drive	4		12				6			5	2			1		1					1			
Gary Avenue	St. Charles Road North				8		2			4	3	2			1		1					1			
Gary Avenue	St. Charles Road South				5		4			2	2	2			1		1					1			
Gary Avenue	Stark Drive	4		8								2			1		1					1			
Gary Avenue	Stratford Square North (Entrance #5)	8		8				8			6				1		1					1			
Gary Avenue	Thomas Road				8	4	2			2	2				1		1								
Gary Avenue	Thunderbird Drive				10		4			4	4	2	4		1	1	1					2			
Gary Avenue	Travis Parkway	4		8				4			3			1	1		1					2			
Geneva Road	Bloomingdale Road				6		2		2		2	2			1		1		1			1			
Geneva Road	County Farm Road				12		8		8		7	4			1		1		1			1			
Geneva Road	Gary Avenue				1		14			8	8	4			1		1		1			1			
Geneva Road	Geneva Crossing / Dominicks SC	8		6						8	6	2			1		1					1			

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Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
Geneva Road	Kenilworth Avenue	8		4				6			4	1		1	1		1					2			
Geneva Road	Morse Street				6		6			8	6	2			1		1			4		1			
Geneva Road	Pleasant Hill Road	8		8				8			6	1			1		1					1			
Geneva Road	President Street				7		8			8	4	2			1		1					1			
Geneva Road	Prince Crossing Road	4		8				8			5	2			1		1								
Geneva Road	Schmale Road / Main Street (Wheaton)	4		8						8	4	4			1	1	1		1	4		1			
Geneva Road	Western Avenue				14					8	4	1			1		1					1			
Geneva Road	Winfield Road				6	1	2			6	4	2			1		1					1			
Glen Ellyn Road	Armitage Avenue				11		4			8					1		1					2			
Glen Ellyn Road	Fullerton Avenue				4		8		8		6	4			1		1		1			1			
Glen Ellyn Road	Gregory Avenue				8		2			4	4	2			1		1					1			
Glen Ellyn Road	St. Matthew's Church				6					2	2				1		1					1			
Glen Ellyn Road	Windy Point Drive				7		8			8	8	2			1		1					1			
Grand Avenue	Church Road	6		8								2			1		1					1			
Grand Avenue	Crown Road				7		2		4		3				1		1					1			
Grand Avenue	Industrial Drive	2		12						2	2	2			1		1					1			
Grand Avenue	Oak Lawn Avenue / Old Grand Ave	8		4				8			5	2			1		1					1			
Grand Avenue	York Road	8		8				8			4	4		1	1		1					2			
Greenbrook Boulevard	Arlington Drive	7		6				8			4	1			1		1								
Highland Avenue	15TH Street				2				2		2				1		1								
Highland Avenue	39th Street	10		4				6			6	1			1		1								
Highland Avenue	Good Samaritan Hospital	4		6				2			2				1		1								
Highland Avenue	I-88 EB Ramp (South)				8	2	3		8		6	3			1		1			3		1			
Highland Avenue	I-88 WB Ramp (North)				13	1	2		6		5	2			1		1			3					
Highland Avenue	IL 56 (Butterfield Road)	22	1	2				6			5	2			1		1			4		1			
Hobson Road	Double Eagle Drive	6		4				4			3	2			1		1			1		1			
Hobson Road	Greene Road				4		8			8	6	2			1		1					1	1		
Hobson Road	Naper Boulevard				8		8		8		7	2			1		1					1	1		
Hobson Road	Olesen Drive	7		2				6			6	2			1		1								
Hobson Road	Washington Street				10		4		4		4	2			1		1					1			
Hobson Road	Woodridge Drive	3		10				8			5	2			1		1								
Jewell Road	Pleasant Hill Road				8		4		8		6	2			1		1								
Lemont Road	101st Street				4		8		2		2	2		1	1		1					2			
Lemont Road	87th Street				10		6					2			1		1					1			
Lemont Road	Chestnut Court SC	7		4										1	1		1					2			

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Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
Lemont Road	Davey Road				8	2	4					2			1	1	1			1		1			
Lemont Road	Dunham Road	10		4						2		2			1		1					1			
Lemont Road	Grove SC	4		8											1		1					1			
Lemont Road	I-55 N. Frontage / Timber Trails				11	2	6		8		5	4	2		1		1					1			
Lemont Road	International Parkway	9		6					2		2	2			1		1					1			
Lemont Road	Plainfield Road / 83rd Street				12		4			8	6				1		1					1			
Lemont Road	Westgate Road / 97th Street				6		8		8		5	1			1		1					1			
Main Street DG	59th Street	8		4						8	4	4			1		1			4		1			
Main Street DG	67th Street	12								2	2				1		1					1			
Maple Avenue	Belmont Road				10		4		8		8	4			1		1								
Maple Avenue	Burr Oak Road	12										2			1		1					1			
Maple Avenue	Dunham Road				11		2		8		7	2			1		1								
Maple Avenue	I-355 NBD Ramps (East)				13		1							1	1		1					2			
Maple Avenue	I-355 SBD Ramps (West)				12	1	1								1		1					1			
Maple Avenue	Illinois Benedictine / Benet Academy	8		4					8		4	2			1		1					1			
Maple Avenue	Patton Drive / East Lake Drive				6		4			4	3	2			1		1					1			
Maple Avenue	Primrose Avenue				5		2		4		4	2			1		1					1			
Maple Avenue	Steeple Run Drive	4		8				8			7	2			1		1					1			
Maple Avenue	Walnut Avenue				4		8		4		3	2			1		1					1			
Maple Avenue	Yackley Avenue / College Road				4		8		4		3	4		1	1		1					2			
Maple Avenue / Chicago Avenue	Naper Boulevard	4		8				8			4	4			1		1					1			4
Medinah Road / Meacham Road	I-390 East Ramps				11	2									1	1	1								
Meyers Road	14th Street				4		8		8		6	4			1		1			4	4	1			
Meyers Road	16th Street	4		8				8			4	4			1		1			4		1			
Meyers Road	22nd Street				7	4	4		8		4	2			1		1			3		1			
Meyers Road	31st Street				4		8		4		3	4			1		1								
Meyers Road	Oak Brook Corporate Center	10		2								2		1	1		1			4		2			
Midwest Road	I-88 Ramps / Baybrook Lane	12		5				4			3	2			1		1			4		1			
Midwest Road / Cass Avenue	35th Street N/E				7		4		4		3	2		1	1		1					2			
Mill Street	Bauer Road	4		8					8		4	2			1		1					1			
Mill Street	Bella Vista Pkwy / Amoco West				6		8		2		2				1		1					1			
Mill Street	Diehl Road				3		10					2			1		1					1	1		
Naper Boulevard	Ridgeland Avenue				4	2	6		8		8	2			1		1					1			
Naper Boulevard	Tower Crossing SC				4		7		2		2				1		1					1			
Naperville Road	Blanchard Street	7	2	6				8			4	2			1		1					1			2

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Naperville Road	Central Park Entrance / ISTA Service Drive				17	2						3			1		1			4		1			
Naperville Road	Danada Drive	5		6				8			3	2			1		1					1			4
Naperville Road	Danada Forest Preserve				10		4		8		4	4			1		1					1			
Naperville Road	Danada Square SC				7		9	8			8	1			1		1					1			
Naperville Road	Diehl Road				3	4	8	6			5	2		1	1		1					2			
Naperville Road	East-West Loop Road	2		18						8	4	2			1		1					1			
Naperville Road	Elm Street	10						8			6	2			1		1					1			
Naperville Road	Farnham Lane	6		4				8			6	2			1		1					1			
Naperville Road	Longfellow Drive				6		4		8		4	2			1		1					1			2
Naperville Road	Lucent Drive North				5		7		12		6	1			1		1					1			
Naperville Road	Warrenville Road				13		8		2			4			1		1			4		1			
Naperville Road - Wheaton Road	US 34 (Ogden Avenue)				9		6								1		1					1			
Park Boulevard	22nd Street (Fawell Boulevard)	5		6						6	4	2		1	1		1					2			
Park Boulevard	College Road	7		4						4	3	2			1		1					1			
Park Boulevard	Glenbard S HS / Raider Lane				8				2		2				1		1								
Plainfield Road	Clarendon Hills Road	8		8				8			8	4		1	1		1					1			
Plainfield Road	Fairmount Avenue				6		4		8		4	2			1		1								
Plainfield Road	Garfield Avenue / Fieldstone Drive				6		4		8		4	2		1	1		1			4		2			
Plainfield Road	High Road	14						8			8	2			1		1								
Plainfield Road	Madison Street				6		8		8		6	2			1		1					1			
Plainfield Road	Manning Lane				8		4		8		8	2			1		1								
Plainfield Road	Tri-State FPD	9													1		1					1			
Plainfield Road- Naperville Road	87th Street	4		8				8			4	2			1		1								
Prospect Avenue	Marino Court / New Pierce Road				4	4	8		4		3	4			1		1			4		1			
Raymond Drive	Diehl Road	8	2	6								2			1		1					1			
Raymond Drive	McDowell Road				8		4		8		4			1	1		1					2			
Roselle Road	Bryn Mawr Avenue	6		2						4	4	1			1		1					1			
Roselle Road	Central Avenue				8		4		8		6	2			1		1					1			
Roselle Road	Maple Avenue	10		2				8			8	2			1		1					1			
Roselle Road	Walnut Street				10		6			8	6	4			1	1	1					1			
Schick Road	Mallard Lane				7		6			4	4	2			1		1								
Schick Road	Meijer SC				4		8		8		4	2			1		1			4		1			
Schmale Road	Fullerton Avenue	4		8						8	4				1		1		1						
Schmale Road	Gundersen Drive	4		8						8	4	2		1	1		1			4		2			
Schmale Road	Home Depot Ent / Geneva Crossing				3		10		8		4	2			1		1					1			

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Schmale Road	Lies Road				5		4			4	4	2			1		1								
Schmale Road	Thornhill Drive	4		8						8	4	2			1		1			4		1			
Schmale Road	Walmart/Target	3		9				6			4	3			1		1					1			
St. Charles Road	Geneva Road / Main Street (Glen Ellyn)				3		10		8			3		1	1	1	1		1	4		2			
St. Charles Road	Riford Lane				7		4			8	7	2			1		1					1			
St. Charles Road	Schmale Road				4		8			8	4	4			1		1		1	4		1			
St. Charles Road	Swift Road				6		4					2			1		1					1			
Stearns Road	Bartlett Road				4		8			8	4	2		1	1		1					2			
Stearns Road	Munger Road				2		12		8		6	4			1		1			4					
Stearns Road	Sycamore Lane				8		4	8				2			1		1								
Summit Avenue	14th Street	9		2				6			4				1		1								
Thorndale Avenue	Arlington Heights Road				4		8					4			1		1					1			
Thorndale Avenue	Lively Boulevard								2			2			1		1					1			
Thorndale Avenue	Mittel Road	2		14								4			1		1					1			
Thorndale Avenue	Park Boulevard	9		6								1			1		1					1			
Thorndale Avenue	Prospect Avenue				4		10		2		2	4			1		1			4	4	1			
Thorndale Avenue	Supreme Drive				4		8								1		1					1			
Thorndale Avenue	Wood Dale Road				7		9					3		1	1		1					2			
Villa Avenue	Fullerton Avenue				4		8		4			8			1		1			4					
Warrenville Road	Arboretum Lakes	3		8								2			1		1								
Warrenville Road	Cabot Drive				4		12			8	8	2			1		1					1			
Warrenville Road	Corporate West Drive	4		8						2	2	2			1		1					1			
Warrenville Road	Cross Street				5		8								1		1								
Warrenville Road	Freedom Drive				13		8		10		6	4			1		1			4		1			
Warrenville Road	Herrick Road				4		8					2			1		1					1			
Warrenville Road	IL Hospital Association / Indian West	6		4								1			1		1					1			
Warrenville Road	Leask Lane / Yender Avenue				2	4	4			8	4	1		1	1		1					2			
Warrenville Road	Main Street Lisle	4	2	2								2			1		1								
Warrenville Road	Mill Street / Ferry Road						16		16		8	2			1		1					1			
Warrenville Road	Washington Street				9		4		6		4				1		1					1			
Warrenville Road	Winfield Road				4		8		10		5	2			1		1					1			
Warrenville Road	Yackley Avenue				4	4	6			4	5	1			1		1					1			
Winfield Road	Ferry Road				12		8		16		8	2			1		1					1			
Winfield Road	I-88 EB Ramps (South)				13				4		4				1		1					1			
Winfield Road	I-88 WB Ramps (North)				11		2		4		4			1	1		1					2			

Traffic Signals under DuPage County Jurisdiction maintained by DuPage County

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
Winfield Road	Mack Road	7		9						8	8	4			1		1								
Winfield Road	Torch Parkway				6		10		8		6	2			1		1					1			
Wood Dale Road	Elizabeth Drive	10		2											1		1								
Wood Dale Road	Foster Avenue	7		6					4		3	2			1		1								
Wood Dale Road	Mittel Drive				7		2		2		2	2			1		1								
Wood Dale Road	Oak Meadows Drive				5	4	4					1			1		1								
Woodward Avenue	83rd Street				4		8			8	4				1		1								
Yackley Avenue	Ohio Street	8		4				4			4	2			1		1								
York Road	Foster Avenue	6		2								2			1		1								
York Road	Spring Road				8		4		8		4	2			1		1								
York Road	South Frontage Road / Sievert Court				12							2			1	1	1			4					
	TOTALS =	**823**	**24**	**677**	**1522**	**60**	**1207**	**514**	**800**	**552**	**1288**	**689**	**42**	**39**	**325**	**33**	**325**	**1**	**20**	**173**	**12**	**300**	**16**		**16**

A1 = 3 Section Heads - Incandescent
A2 = 4 Section Heads - Incandescent
A3 = 5 Section Heads - Incandescent
A4 = 3 Section Heads - LED
A5 = 4 Section Heads - LED
A6 = 5 Section Heads - LED
A7-A = Pedestrian Heads-Incandescent
A7-B = Pedestrian Heads-LED, Non countdown
A7-C = Pedestrian Heads- LED Countdown

A8 = Pedestrian Push Buttons
A9 = Combo-mounted Luminaires
A10= Illuminated Signs
A11 = Master Controllers
A12 =Local Cabinets
A13 = UPS System
A14 = Emergency Vehicle Preemption
A15 = Radar Detectors
A16 = Pan Tilt Zoom Camera System

A17 = Video Vehicle Detectors
A18 = FLIR Cameras
A19 = Transceivers
A20 = Radio Communications
A29 = Magnetic Detectors
A30 = Accessible Pedestrian Signals

Traffic Signals under State or Municipal Jurisdiction maintained by DuPage County

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
31st Street	IL 83 (East Ramps)				9	2		2			2														
31st Street	IL 83 (West Ramps)				9	2		2			2														
Addison Road	Factory Road / Blecke Avenue	9	2	2								2			1		1								
Addison Road	Lincoln Avenue	6	2	2								1			1		1								
Addison Road	Moreland Avenue	12		2								2			1		1								
Army Trail Road	IL 53 (Rohlwing Road)	11	0	4				9			9	0	0		1		1			0		1			
Blanchard Street	Town Square SC	6		4				2			2	2			1		1					1			
Diehl Road	Freedom Drive / Connector Road				19		3		12		8	4			1		1			4					
Freedom Drive	Freedom Commons Ent. / Independence Avenue				4		8		8		7	4			1		1			4		1			
Freedom Drive	I-88 EB Ramps (South)				12				4		4	2			1		1			2		1			
Freedom Drive	I-88 WB Ramps (North)				14				4		3	2			1		1					1			
Lies Road	Kuhn Road	4		8				8			8	4			1		1								
Main Street (Lisle)	Burlington Avenue	8		8				8			6	4			1		1								
Main Street (Lisle)	School Street	9						6			5	2			1		1								
US 34 (Ogden Avenue)	Naper Boulevard				2		12		8		8	2			1	1	1					1			
US 34 (Ogden Avenue)	Iroquois Avenue				8		6		8	8	5					1									
US 34 (Ogden Avenue)	Wheaton-Naperville Road	9		6						2	2				1		1								
	TOTALS =	**74**	**4**	**36**	**77**	**4**	**29**	**37**	**44**	**10**	**71**	**31**	**0**	**0**	**14**	**2**	**14**	**0**	**0**	**10**	**0**	**6**	**0**	**0**	**0**

A1 = 3 Section Heads - Incandescent
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A4 = 3 Section Heads - LED
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A7-A = Pedestrian Heads-Incandescent
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A18 = FLIR Cameras
A19 = Transceivers
A20 = Radio Communications
A29 = Magnetic Detectors
A30 = Accessible Pedestrian Signals

DPCDOT MAINTAINED BEACON / UNDERPASS LIGHTING / PUMP STATION / STREET LIGHTING / SIGN LIGHTING INVENTORY

Location	A21	A22	A23	A24	A25	A26	A27
31ST St. & Salt Creek Bridge					8		
55TH St. & County Line Rd.					2		
55TH St. & Main St. (DG)		2					
55TH St. & Washington St.		2					
63RD St. & Fairmont Avenue		2					
75TH St & Olympus Drive					14		2
75TH St & Washington Street			6		19		
87TH St & Woodward Dr-East					10		
87TH St & Woodward Dr-West					11		
Addison Rd & Elizabeth St					10		
Arlington Hts Rd & New Pierce Rd	3						
Army Trail Rd - Swift Rd to Rohlwing Rd			25		45	1	
Belmont Rd & Metra Station				1			
Belmont Rd & Prairie Ave		2					
Bloomingdale Rd & Glen Arbor Ct.					1		
Bloomingdale Rd & Raven Lane		1					
Cass Av & Clarendon Hills Cemetary Ent		1					
Cass Av South of Plainfield Rd		1					
County Farm Rd & Ill. Rte 38 (Roosevelt Rd.)					2		
County Farm Rd - Manchester Rd to Jewell Rd					29		
County Farm Rd & Union Pacific RR			12	1			
Freedom Dr & I-88			15				
Gary Ave & Elgin O'Hare Ramp		2					
Gary Ave & ICC & P RR		1					
Geneva Rd & Churchill School/Kenilworth Dr		2					
Geneva Rd & Coventry Dr					1		
Geneva Rd & Gary Av					8		
Geneva Rd & Partridge Dr					1		
Geneva Rd & Wheatberry Dr					1		
Hobson Rd & Goodrich Elementary School Ent		2					
Lemont Rd & 109th St		1					
Lemont Rd & McCollum Park Entrance		2					
Maple Av/Dunham Rd & 55th St		2					
Medinah Rd/Meacham Rd & I-390 East Ramps			8		13		
Medinah Rd & Lake Park H.S. School Ent	1						
Medinah Rd & Medinah Country Club	1						
Medinah Rd & Medinah Intermediate School Ent	4						
Naperville Rd & I-88 South Ramp			10				
North Ave (IL Rt 64) & Illinois Prairie Path			8				
Plainfield Rd & Lakeview Jr High School Ent		2					
Plainfield Rd & Our Lady of Peace Ent		2					
River Rd/Woodland Rd & Bower School Ent		2					
St. Charles Rd & Blue Ridge Ct					1		
Stearns Rd & Munger Rd					19		
Swift Rd - St. Charles Rd to North Ave.					8		
Warrenville Rd & I-88			20				
Warrenville Rd & Mill St/Ferry Rd					46		
Warrenville Rd & Private Entrance (801 Warr.)					1		
Winfield Rd & I-88			14				
Wood Dale Rd & Elizabeth Dr							
Yackley Av & I-88			10				
York Rd / Salt Creek Bridge					8		
TOTALS	**9**	**29**	**128**	**2**	**258**	**1**	**2**

LEGEND

A21 = Overhead Beacon
A22 = Post Mount Beacon
A23 = Underpass Lighting
A24 = Pump Station
A25 = Street Lighting
A26 = Sign Lighting
A27 = Solar Flashers
A28 = Washington Street No Parking

TRAFFIC SIGNAL MAINTENANCE CONTRACT

SCHEDULE OF ROUTINE MAINTENANCE PAY ITEMS

DuPage County

The following is a listing of the Routine Maintenance Pay Items that the Contractor shall be responsible to maintain under this Contract with DuPage County. The quantity of each pay item is provided to enable the Contractor to readily determine the Routine Maintenance Pay Items at a given location. This list is comprised of existing equipment owned and/or maintained by the DuPage County Division of Transportation, and new equipment planned for construction and/or installation during the term of this Contract. The list includes locations of traffic signals, emergency vehicle preemption systems, flashing beacons, street lighting, pump stations, and vehicle counting stations. The Routine Maintenance Pay Items at a given location vary due to construction, maintenance transfers, new installations, maintenance agreement revisions, and removals. The Schedule of Routine Maintenance Pay Items shall not be considered all-inclusive or comprehensive in any way, and the DuPage County Division of Transportation shall not be held accountable for any errors on the list.

THE ROUTINE MAINTENANCE PORTION OF THE SCHEDULE OF PRICES FOR THIS CONTRACT (PAY ITEMS T-1 TO T-11, L-1 to L-4, and PS-1) CONTAINS BID QUANTITIES THAT REFLECT AN ESTIMATED TYPICAL MONTH'S MAINTENANCE.

DUPAGE COUNTY LOCATION LISTING

		ROUTINE MAINTENANCE PAY ITEMS																
	LOCATION	TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
	Traffic Signal / Combination Ltg																	
1	31st St. & Concord Dr. / Trinity Ln.	1											2				
2	31st St. & Highland Ave.	1											4				
3	31st St. & IL. 83 SB Ramps	1															
4	31st St. & IL. 83 NB Ramps	1															
5	31st St. & Meyers Rd.	1											4				
6	31st St. & Midwestern University / Avenue LaTours	1											4				
7	31st St. & Regent Dr. / St. Paschal Dr.	1											2				
8	31st St. & Summit / Midwest Rd.	1											4				
9	31st St. & York Rd.	1											4				
10	31st St. & Highland Pkwy.	1															
11	55th St. & Cass Ave.	1											4				
12	55th St. & Clarendon Hills Rd	1											2				
13	55th St. & Fairview Ave.	1															
14	55th St. & Garfield Ave.	1											2				
15	55th St. & Grant St.	1											2				
16	55th St. & Holmes Ave.	1											4				
17	55th St. & IL. 83 East Ramps	1											2				
18	55th St. & IL. 83 West Ramps	1											2				
19	55th St. & Madison St.	1											2				
20	55th St. & Main St. (Downers Grove)	1			2												
21	55th St. & Maple Ave. / Dunham Rd.	1			2								2				
22	55th St. & Washington St.				2												
23	63rd St. & Belmont Rd.	1											2				
24	63rd St. & Cass Ave.	1											3				
25	63rd St. & Clarendon Hills Rd.	1											2				
26	63rd St. & Dunham Rd.	1											2				
27	63rd & Fairmount Ave.				1												
28	63rd St. & Fairview Ave.	1											2				
29	63rd St. & Americana Dr. / Hinsdale Commons Shopping Ctr.	1											2				
30	63rd St. & I-355 East Ramps	1															
31	63rd St. & I-355 West Ramps	1															
32	63rd St. & Leonard Ave. / Target	1											2				
33	63rd St. & Madison St.	1											2				
34	63rd St. & Main St. (Downers Grove)	1											4				
35	63rd St. & Ridge Rd.	1											2				
36	63rd St. & Williams St.	1											2				
37	63rd St. & Woodward Ave.	1											2				
38	75th St. & Adams St.	1											4		2		
39	75th St. & Beebe Dr.	1											4				
40	75th St. & Book Rd.	1											2				
41	75th St. & Cass Ave.	1											4		4		
42	75th St. & Clarendon Hills Rd.	1															
43	75th St. & Dunham Rd.	1											4		2		
44	75th St. & Fairmount Ave.	1											2				
45	75th St. & Fairview Ave.	1											2				
46	75th St. & Fort Hill Dr.	1											2				
47	75th St. & Greene Rd.	1											2				
48	75th St. & I-355 East Ramps	1															
49	75th St. & I-355 West Ramps	1															
50	75th St. & Janes Ave.	1											4				
51	75th St. & Lemont Rd.	1											4		4		
52	75th St. & Lyman Ave.	1											2				
53	75th St. & Millbrook Dr. / Hobson West Commons	1															
54	75th St. & Modaff Rd.	1											2				
55	75th St. & Naper Blvd.	1											4				
56	75th St. & Naperville - Plainfield Rd. / Rickert Dr.	1											4				
57	75th St. & Olympus Dr.	1			2								2				
58	75th St. & Plainfield Rd.	1											6				
59	75th St. & Ranchview	1											2				
60	75th St. & Washington St.	1											4	6			
61	75th St. & Wehrli Rd.	1											3				
62	75th St. & Williams St. / Exner Rd.	1											2				
63	75th St. & Woodridge Dr.	1															

DUPAGE COUNTY LOCATION LISTING

		ROUTINE MAINTENANCE PAY ITEMS															
	LOCATION	TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
64	75th St. & Woodward Ave.	1											4				
65	87th St. & Woodward Ave.	1											4				
66	Addison Rd. & Elizabeth Dr.	1											2				
67	Addison Rd. & Factory Rd. / Blecke Ave.	1											2				
68	Addison Rd. & Green Meadow Dr.	1															
69	Addison Rd. & Lincoln Ave.	1											1				
70	Addison Rd. & Moreland Ave.	1											2				
71	Addison Rd. & Potter St.	1															
72	Army Trail Rd. & Bloomingdale Court Shopping Ctr.	1											2				
73	Army Trail Rd. & Bloomingdale Rd.	1											4				
74	Army Trail Rd. & Butterfield Dr.	1											4				
75	Army Trail Rd. & Cardinal	1											4				
76	Army Trail Rd. & Clipper Dr.	1											4				
77	Army Trail Rd. & County Farm Rd.	1											4				
78	Army Trail Rd. & Creekside Dr.	1											2				
79	Army Trail Rd. & Fair Oaks Rd.	1											2				
80	Army Trail Rd. & Gary Ave.	1											4				
81	Army Trail Rd. & George Bell / Home Depot	1											4				
82	Army Trail Rd. & Gladstone Dr.	1											4				
83	Army Trail Rd. & Gerber Rd.	1											3				
84	Army Trail Rd. & Glen Ellyn Rd.	1											4				
85	Army Trail Rd. & I-355									1				25	1		
86	Army Trail Rd. & I-355 East Ramps	1											0				
87	Army Trail Rd. & I-355 West Ramps	1											0				
88	Army Trail Rd. & Knollwood Dr.	1											4				
89	Army Trail Rd. & Madsen Dr. / Kuhn Rd.	1											4				
90	Army Trail Rd. & Meadow Rd.	1											2				
91	Army Trail Rd. & Merbach Dr.	1											2				
92	Army Trail Rd. & Petersdorf Rd.	1											4				
93	Army Trail Rd. & Regency Dr. / High Grove Blvd.	1											4				
94	Army Trail Rd. & Schmale Rd. / Skylark Dr.	1											2				
95	Army Trail Rd. & Spring Valley Dr.	1															
96	Army Trail Rd. & Springfield Dr.	1											4				
97	Army Trail Rd. & Swift Rd.	1											4				
98	Army Trail Rd. & Valley View Rd.					1											
99	Army Trail Rd. & Woodlake Dr.	1											2				
100	Bartlett Rd. & Pipers Dr. / Bartlett Public Library	1											2				
101	Bartlett Rd. & Schick Rd.	1											2				
102	Bartlett Rd. & Stearns Rd.	1											2				
103	Bartlett Rd. & Struckman Blvd.	1											4				
104	Belmont Rd. & Burlington Ave. (Downers Grove)																1
105	Belmont & Burlington Northern Railroad Underpass													12			
106	Belmont & Curtis St.	1											4				
107	Belmont & Haddow Ave.	1											2				
108	Belmont & Prairie Ave.	1			2								2				
109	Blanchard Rd. & Town Square Shopping Center	1											2				
110	Bloomingdale Rd. & Armitage Ave.	1															
111	Bloomingdale Rd. & Edgewater Dr.	1															
112	Bloomingdale Rd. & Fairfield Way / Founders Pointe	1															
113	Bloomingdale Rd. & Fullerton Ave.	1															
114	Bloomingdale Rd. & Glen Pointe Dr.	1											1				
115	Bloomingdale Rd. & Greenway Dr.	1											4				
116	Bloomingdale Rd. & N. Brandon Dr.	1															
117	Bloomingdale Rd. & Queen Bee School District	1															
118	Bloomingdale Rd. & Raven Lane				1												
119	Bloomingdale Rd. & Schick Rd.	1											2				
120	Bloomingdale Rd. & Shorewood Dr.	1											2				
121	Bloomingdale Rd. & Sidney Ave.	1															
122	Bloomingdale Rd. & St. Charles Rd.	1											4				
123	Bloomingdale Rd. & Stevenson Dr.	1															
124	Cass Ave. & 59th St.	1											4				
125	Cass Ave. & 65th St.	1											2				
126	Cass Ave. & 67th St.	1											2				
127	Cass Ave. & Clarendon Hills Cemetery				1												

DUPAGE COUNTY LOCATION LISTING

		ROUTINE MAINTENANCE PAY ITEMS															
	LOCATION	TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
128	Cass Ave. & Concord Pl. / Ashbrook Ct.	1											1				
129	Cass Ave. & Plainfield Rd.	1															
130	Cass Ave. / Midwest Rd. & 35th St. S/W	1											2				
131	Cass Ave. South of Plainfield Road				1												
132	College Rd. & Abbeywood Dr.	1											3				
133	College Rd. & Green Trails Dr.	1											4				
134	College Rd. & IBU (Benedictine) Entrance	1											2				
135	College Rd. / Wehrli Rd. & Hobson Rd.	1											4				
136	County Farm Rd. & Birchbark Tr.	1											2				
137	County Farm Rd. & County Complex North Entrance	1											2				
138	County Farm Rd. & Jewell Rd.	1											2				
139	County Farm Rd. & Kelly Dr.	1											2				
140	County Farm Rd. & Lies Rd.	1											2				
141	County Farm Rd. & Main Complex Dr.	1											2				
142	County Farm Rd. & Manchester Rd.	1											2				
143	County Farm Rd. & Ontarioville Rd.	1											4				
144	County Farm Rd. & Schick Rd.	1											4				
145	County Farm Rd. & St. Charles Rd.	1											2				
146	County Farm Rd. & Stearns Rd. / Greenbrook	1											2				
147	County Farm Rd. & Union Pacific R.R.													12			1
148	County Farm Rd. & Williams St.	1											2				
149	Devon Ave. & Prospect Ave.	1											2				
150	Diehl Rd. & AMC Theatre	1											4				
151	Diehl Rd. & Bulger Ct. / Weaver Pkwy	1															
152	Diehl Rd. & Connector / DeVry University	1											4				
153	Diehl Rd. & Freedom Dr.	1											4				
154	Eola Rd. & Diehl Rd.	1											4				
155	Eola Rd. & Ferry / Bilter	1											2				
156	Eola Rd. & Jewell Entrance / Sheffer Rd.	1											2				
157	Eola Rd. & Liberty St.	1											4				
158	Eola Rd. & Metea High School North Entrance	1											3				
159	Eola Rd. & Molitor Rd / Metea High School South Ent.	1											4				
160	Eola Rd. & North Aurora Rd.	1											2				
161	Eola Rd. & Stone Bridge Blvd. / Haverhill	1											2				
162	Fabyan Pkwy & Technology Dr	1											3				
163	Fairview Ave. & 39th St.	1											2				
164	Fairview Ave. / Meyers Rd. & 35th St.	1											2				
165	Ferry Rd. & Bella Vista Pkwy / Chase Ct.	1															
166	Ferry Rd. & River Rd.	1											2				
167	Ferry Rd. & Torch Pkwy.	1															
168	Finley Rd. & Lacey Rd.	1											2				
169	Finley Rd. & Opus Pl.	1															
170	Freedom Dr. & I-88													15			
171	Freedom Connector & I-88 North Ramp	1											2				
172	Freedom Connector & I-88 South Ramp	1											2				
173	Freedom Dr. & Freedom Commons	1											4				
174	Gary Ave. & Central Ave.	1											4				
175	Gary Ave. & Elk Trail	1											2				
176	Gary Ave. & Fullerton Ave. / Hiawatha Dr.	1											4				
177	Gary Ave. & Jewell Rd.	1											2				
178	Gary Ave. & Lawrence Ave.	1											4				
179	Gary Ave. & Lies Rd.	1											4				
180	Gary Ave. & Meijer Entrance	1											2				
181	Gary Ave. & Schick Rd.	1											4				
182	Gary Ave. & Scott Dr. (Stratford Square S.)	1											2				
183	Gary Ave. & St. Charles Rd. (N. Leg)	1											2				
184	Gary Ave. & St. Charles Rd. (S. Leg)	1											2				
185	Gary Ave. & Stark Dr.	1											2				
186	Gary Ave. & Stratford Square N.	1															
187	Gary Ave. & Thomas Rd.	1															
188	Gary Ave. & Thunderbird Dr.	1											2				
189	Gary Ave. & Travis Pkwy.	1			2												
190	Geneva Rd. & Bloomingdale Rd.	1											2				
191	Geneva Rd. & County Farm Rd.	1											4				

DUPAGE COUNTY LOCATION LISTING

		ROUTINE MAINTENANCE PAY ITEMS															
	LOCATION	TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
192	Geneva Rd. & Gary Ave.	1											4				
193	Geneva Rd. & Geneva Crossing Shopping Ctr.	1											2				
194	Geneva Rd. & Kenilworth Ave. / Churchill School	1			2								1				
195	Geneva Rd. & Morse St.	1											2				
196	Geneva Rd. & Pleasant Hill Rd.	1											1				
197	Geneva Rd. & President St.	1											2				
198	Geneva Rd. & Prince Crossing Rd.	1											2				
199	Geneva Rd. & Schmale Rd. / Main St.	1											4				
200	Geneva Rd. & Western Ave.	1											1				
201	Geneva Rd. & Winfield Rd.	1											2				
202	Glen Ellyn Rd. & Armitage Ave.	1															
203	Glen Ellyn Rd. & Fullerton Ave.	1											4				
204	Glen Ellyn Rd. & Gregory Dr.	1											2				
205	Glen Ellyn Rd. & St. Matthew Church	1															
206	Glen Ellyn Rd. & Windy Pointe Dr.	1											2				
207	Grand Ave. & Church Rd.	1											2				
208	Grand Ave. & Crown Rd.	1															
209	Grand Ave. & Industrial Dr.	1											2				
210	Grand Ave. & Old Grand Ave. / Oaklawn Ave.	1											2				
211	Grand Ave. & York Rd.	1											4				
212	Greenbrook Blvd & Arlington Dr.	1											1				
213	Highland Ave. & 39th St.	1											1				
214	Highland Ave. & Butterfield Rd. (IL. 56)	1											2				
215	Highland Ave. & Good Samaritan Hospital	1															
216	Highland Ave. & I-88 EB Ramps	1											3				
217	Highland Ave. & I-88 WB Ramps	1											2				
218	Hobson Rd. & Double Eagle Dr.	1											2				
219	Hobson Rd. & Goodrich Elementary School				2												
220	Hobson Rd. & Green Rd.	1											2				
221	Hobson Rd. & Naper Blvd.	1											2				
222	Hobson Rd. & Oleson	1											2				
223	Hobson Rd. & Washington St.	1											2				
224	Hobson Rd. & Woodridge Dr.	1											2				
225	Hobson Rd. / 59th St. & Belmont Rd.	1											2				
226	Jewell Rd. & Pleasant Hill	1											2				
227	Lemont Rd. & 87th St.	1											2				
228	Lemont Rd. & 101st St.	1											2				
229	Lemont Rd. & 109th St.				1												
230	Lemont Rd. & Chestnut Crt Shopping Ctr.	1															
231	Lemont Rd. & Davey Rd	1											2				
232	Lemont Rd. & Dunham Rd.	1											2				
233	Lemont Rd. & Grove Shopping Ctr.	1															
234	Lemont Rd. & I-55 North Frontage Rd. / Timber Trails	1											4				
235	Lemont Rd. & Internationale Pkwy.	1											2				
236	Lemont Rd. & McCollum Park Entrance				2												
237	Lemont Rd. & Plainfield Rd. / 83rd St.	1															
238	Lemont Rd. & Westgate Rd. / 97th St.	1											1				
239	Lies Rd. & Kuhn Rd.	1											4				
240	Main St. (Lisle) & Burlington Av.	1											4				
241	Main St. (Lisle) & School St.	1											2				
242	Main St. (Downers Grove) & 59th St.	1											4				
243	Main St. (Downers Grove) & 67th St.	1															
244	Maple Ave. & Belmont Ave.	1											4				
245	Maple Ave. & Burr Oak Rd.	1											2				
246	Maple Ave. / Chicago Ave & Charles Ave.	1											2				
247	Maple Ave. & I-355 East Ramps	1															
248	Maple Ave. & I-355 West Ramps	1															
249	Maple Ave. & IBC / Benet	1											2				
250	Maple Ave. / Chicago Ave & Olesen Dr.	1											2				
251	Maple Ave. & Patton Dr.	1											2				
252	Maple Ave. & Primrose Ave.	1											2				
253	Maple Ave. Steeple Run Dr.	1											2				
254	Maple Ave. & Walnut Ave.	1											2				
255	Maple Ave. & Yackley Ave.	1											4				

DUPAGE COUNTY LOCATION LISTING

		ROUTINE MAINTENANCE PAY ITEMS																
	LOCATION	TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
256	Maple Ave. / Chicago Ave. & Naper Blvd.	1											4				
257	Medinah Rd. / Meacham Rd. & I-390 East Ramps	1											13	8			
258	Medinah Rd. & Lake Park High School			1													
259	Medinah Rd. & Medinah Country Club			1													
260	Medinah Rd. & Medinah Intermediate School			1													
261	Medinah Rd. & Thorndale Ave.	1											2				
262	Meyers Rd. & 14th St.	1											4				
263	Meyers Rd. & 16th St.	1											4				
264	Meyers Rd. & 22nd St.	1											2				
265	Meyers Rd. & Corporate Center	1											2				
266	Midwest Rd. & I-88 / Baybrook Ln.	1											2				
267	Midwest Rd. / Cass Ave. & 35th St. N/E	1											2				
268	Mill St. & Amoco West / Bella Vista	1															
269	Mill St. & Bauer Rd.	1											2				
270	Mill St. & Diehl Rd.	1											2				
271	Naper Blvd. & Ogden Ave. (US 34)	1											2				
272	Naper Blvd. & Ridgeland Ave.	1											2				
273	Naper Blvd. & Tower Crossing Shopping Ctr.	1															
274	Naperville Rd. & Blanchard Rd.	1											2				
275	Naperville Rd. & Danada Dr.	1											2				
276	Naperville Rd. & Danada Forest Preserve	1											4				
277	Naperville Rd. & Danada Square Shopping Ctr.	1											1				
278	Naperville Rd. & Diehl Rd.	1											2				
279	Naperville Rd. & East / West Loop Rd.	1											2				
280	Naperville Rd. & Elm St.	1											2				
281	Naperville Rd. & Farnham Ln.	1											2				
282	Naperville Rd. & Central Park Entrance	1											3				
283	Naperville Rd. & I-88 South Ramp													12			
284	Naperville Rd. & Lucent Technologies	1											1				
285	Naperville Rd. & Longfellow	1											2				
286	Naperville Rd. & Warrenville Rd.	1											4				
287	Naperville Rd. / Wheaton Rd. & Ogden Ave. (US 34)	1															
288	North Ave. (IL 64) & Illinois Prairie Path													8			
289	Ogden Ave. (US 34) & Iroquois Ave.	1															
290	Park Blvd. & College Rd.	1											2				
291	Park Blvd. & Fawell Blvd. (22nd St.)	1											2				
292	Park Blvd. & Glenbard South High School	1															
293	Plainfield Rd. & Clarendon Hills Rd.	1											4				
294	Plainfield Rd. & Fairmount Ave.	1			2								2				
295	Plainfield Rd. & Garfield Rd. / Fieldstone Dr.	1											2				
296	Plainfield Rd. & High Rd.	1											2				
297	Plainfield Rd. & Madison St.	1											2				
298	Plainfield Rd. & Manning Ln.	1											2				
299	Plainfield Rd. / Naperville Rd. & 87th St.	1											2				
300	Plainfield Rd. & Our Lady of Peace				2												
301	Plainfield Rd. & Tri State Fire Station # 2	1															
302	Prospect Rd. & Marino Ct. / Pierce Rd.	1											4				
303	Raymond Dr. & Diehl Rd.	1											2				
304	Raymond Dr. & McDowell Rd.	1											2				
305	Raymond Dr. & Ferry Rd.	1											3				
306	River Rd. & Woodland Rd. / Bower School				2												
307	Roselle Rd. & Bryn Mawr Ave.	1											1				
308	Roselle Rd. & Central Ave.	1											2				
309	Roselle Rd. & Maple Ave.	1											2				
310	Roselle Rd. & Walnut	1											2				
311	Schick Rd. & Mallard Lake / Mallard Ln.	1											2				
312	Schick Rd. & Thorn Rd. / Meijer Entrance	1											2				
313	Schmale Rd. & Fullerton Ave.	1											-				
314	Schmale Rd. & Gunderson Dr.	1											2				
315	Schmale Rd. & Home Depot / Geneva Crossing	1											2				
316	Schmale Rd. & Lies Rd.	1											2				
317	Schmale Rd. & Thornhill Dr.	1											2				
318	Schmale Rd. & Walmart / Target	1											3				
319	St. Charles Rd. & Riford Ln.	1											1				

DUPAGE COUNTY LOCATION LISTING

		ROUTINE MAINTENANCE PAY ITEMS															
	LOCATION	TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
320	St. Charles Rd. & Schmale Rd.	1											4				
321	St. Charles Rd. & Swift Rd.	1											2				
322	St. Charles Rd. / Geneva Rd. & Main St. (Glen Ellyn)	1											3				
323	Stearns Rd. & Munger Rd.	1											4				
324	Stearns Rd. & Sycamore Ln.	1											2				
325	Summit Ave. & 14th St.	1															
326	Thorndale Ave. & Arlington Heights Rd.	1											4				
327	Thorndale Ave. & Lively Blvd.	1											2				
328	Thorndale Ave. & Mittel Rd.	1											4				
329	Thorndale Ave. & Park Blvd.	1											1				
330	Thorndale Ave. & Prospect Ave.	1											4				
331	Thorndale Ave. & Supreme Dr.	1															
332	Thorndale Ave. & Wood Dale Rd.	1											3				
333	Thorndale Ave. & York Rd.	1											2				
334	Villa Ave. & Fullerton Ave.	1											8				
335	Warrenville Rd. & Arboretum Lakes	1											2				
336	Warrenville Rd. & Cabot Dr.	1											2				
337	Warrenville Rd. & Lucent Technologies East	1											2				
338	Warrenville Rd. & Cross St.	1															
339	Warrenville Rd. & Herrick Rd.	1											2				
340	Warrenville Rd. & I-88													20			
341	Warrenville Rd. & IL Hospital Assoc. (Corporate West)	1											2				
342	Warrenville Rd. & Leask Ln. / Yender Ave.	1											0				
343	Warrenville Rd. & Lucent Technologies West	1											4				
344	Warrenville Rd. & Main St. (Lisle)	1											2				
345	Warrenville Rd. & Mill St. / Ferry Rd.	1											2				
346	Warrenville Rd. & Washington St.	1															
347	Warrenville Rd. & Winfield Rd.	1											2				
348	Warrenville Rd. & Yackley Ave.	1											1				
349	Winfield Rd. & Diehl Rd.	1											3				
350	Winfield Rd. & Ferry Rd.	1											2				
351	Winfield Rd. & I-88													14			
352	Winfield Rd. & I-88 North Ramps	1															
353	Winfield Rd. & I-88 South Ramps	1															
354	Winfield Rd. & Mack Rd.	1											4				
355	Winfield Rd. & Torch Pkwy.	1											2				
356	Wood Dale Rd. & Elizabeth Dr.		1														
357	Wood Dale Rd. & Oak Meadow Dr.	1											1				
358	Wood Dale Rd. & Foster Ave.	1											2				
359	Wood Dale Rd. & Mittel Dr.	1											2				
360	Woodward Ave. & 83rd St.	1															
361	Yackley Ave. & I-88													10			
362	Yackley Ave. & Ohio St.	1											2				
363	York Rd. & Foster Ave.	1											2				
364	York Rd. & S. Frontage Rd. / Sievert Ct.		1														
365	York Rd. & Spring Rd.	1											2				

DUPAGE COUNTY LOCATION LISTING

		ROUTINE MAINTENANCE PAY ITEMS															
	LOCATION	TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
	Street Lighting (Systems and Stand Alone)																
365	31st St. over Salt Creek Bridge												8				
366	55th St. & County Line Rd.												2				
367	75th St. & Olympus Dr.												16				
368	75th St. & Washington St												19				
369	87th St. & Woodward Ave. (East)												10				
370	87th St. & Woodward Ave. (West)												11				
371	Addison Rd. & Elizabeth Dr.												10				
372	Army Trail Rd. - Swift Rd. to Rohlwing Rd.												32				
373	Bloomingdale Rd. & Glen Arbor Ct.												1				
374	County Farm Rd. & IL. 38												2				
375	County Farm Rd. - Manchester Rd. to Jewell Rd.												29				
376	County Farm Rd. "S" Curve - Ontarioville Rd. (north limit)												10				
377	Gary Ave. & Travis Pkwy.												15				
378	Geneva Rd. & Conventry Dr.												1				
379	Geneva Rd. & Gary Ave.												8				
380	Geneva Rd. & Partridge Dr.												1				
381	Geneva Rd. & Wheatberry Dr.												1				
382	St. Charles Rd. & Blue Ridge Ct. (Carol Stream)												1				
383	Stearns Rd. & Munger Rd.												19				
384	Warrenville Rd. & Mill St. / Ferry Rd.												44				
385	Warrenville Rd. & Private Entrance (801 Warr.)												1				
386	York Rd. over Salt Creek Bridge (Graue Mill)												8				
		TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
	Totals	**339**	**2**	**3**	**29**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**989**	**142**	**13**	**0**	**2**

- **CITY OF AURORA**

- **EQUIPMENT LIST**
- **SCHEDULE OF ROUTINE MAINTENANCE PAY ITEMS** [redacted]

TRAFFIC SIGNAL MAINTENANCE CONTRACT

EQUIPMENT LIST

City of Aurora

The following is a listing of the equipment that the Contractor shall be responsible to maintain under this Contract with the City of Aurora. The approximate number and type of equipment is listed to provide the Contractor with a breakdown of the inventory for bidding purposes. This list is comprised of existing equipment owned and/or maintained by the City of Aurora, and new equipment planned for construction and/or installation during the term of this Contract. The list includes traffic signal locations and number of signal appurtenances. The number of traffic signal locations varies due to construction, maintenance transfers, new installations, maintenance agreement revisions, and removals. The equipment list shall not be considered all-inclusive or comprehensive in any way, and the City of Aurora shall not be held accountable for any errors on the list.

City of Aurora Traffic Signal Inventory

Serial No.	Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
1	Lake Street	Jericho Road	-	-	-	9	-	4	-	-	-	-	1	-	-	1	-	-		-	-	-		-	-	-
2	Lake Street	Prairie Street	-	-	-	6	-	4	-	-	-	-	1	-	-	1	-	-		-	-	-		-	-	-
3	Lake Street	Gale Street	-	-	-	8	-	4	-	-	8	8	-	-	-	1	1	4		-	-	-		-	-	-
4	Lake Street	Benton Street	-	-	-	7	-	2	-	-	8	8	3	3	-	1	1	3		1	-	-		-	-	-
5	Lake Street	Downer's Plc	-	-	-	5	-	5	-	-	8	8	3	3	-	1	1	3		-	2	-		-	-	-
6	Lake Street	Galena Blvd	-	-	-	4	6	-	-	-	8	8	3	3	-	1	1	2		-	-	-		1	-	-
7	Lake Street	New York Street	-	-	-	9	-	-	-	-	7	4	3	3	-	1	1	3		-	-	-		-	-	-
8	Lake Street	West Park (APD)	-	-	-	8	-	3	-	-	8	8	-	-	-	1	1	4		-	-	-		-	-	-
9	Lake Street	Illinois Avenue	-	-	-	10	-	12	-	-	10	10	-	-	-	1	1	4		1	-	-		-	-	-
10	Lake Street	Northgate (Entpr)	-	-	-	7	-	4	-	-	4	4	-	-	-	1	1	4		-	-	-		-	-	-
11	Lake Street	Northgate (KFC)	-	-	-	10	-	2	-	-	2	2	-	-	-	1	1	3		-	-	-		-	-	-
12	Lake Street	Indian Trail	-	-	-	4	-	8	-	-	8	7	-	-	-	1	1	4		1	-	-		-	-	-
13	Lake Street	Aurora Commons	-	-	-	9	-	4	-	-	2	2	-	-	-	1	1	2		-	-	-		-	-	-
14	Lake Street	Sullivan Road	-	-	-	4	-	11	-	-	8	8	-	-	-	1	1	4		-	-	-		-	-	-
15	Lake Street	Northgate (McD)	-	-	-	8	-	4	-	-	5	4	-	-	-	1	1	4		-	-	-		-	-	-
16	Galena Boulevard	Constitution Dr	-	-	-	6	-	10	-	-	6	5	-	-	-	1	1	4		-	-	-		-	-	-
17	Galena Boulevard	Walmart	-	-	-	6	-	8	-	-	4	3	-	-	-	1	1	4		-	-	-		-	-	-
18	Galena Boulevard	Reimer Dr	-	-	-	8	1	7	-	-	4	4	-	-	-	1	1	4		-	-	-		-	-	-
19	Galena Boulevard	Edgelawn Dr	-	-	-	6	-	8	-	-	4	4	-	-	-	1	1	4		1	-	-		-	-	-
20	Galena Boulevard	Randall Rd	-	-	-	6	-	8	-	-	4	3	2	-	-	1	1	4		-	-	-		-	-	-
21	Galena Boulevard	Gladstone Ave	-	-	-	10	-	-	-	8	-	5	-	-	-	1	-	4		-	1	-		-	-	-
22	Galena Boulevard	Commwealth Ave	-	-	-	10	-	2	-	-	4	6	-	-	-	1	1	4		1	-	-		-	-	-
23	Galena Boulevard	Elmwood Dr	-	-	-	6	-	6	-	-	8	4	2	-	-	1	1	4		-	-	-		-	-	-
24	Galena Boulevard	Lancaster Ave	-	-	-	9	-	2	-	-	8	4	2	-	-	1	1	4		-	-	-		-	-	-
25	Galena Boulevard	Highland Ave	-	-	-	8	-	6	-	-	8	6	-	-	-	1	1	4		-	-	-		-	-	-
26	Galena Boulevard	View St	-	-	-	7	-	6	-	-	8	4	-	-	-	1	1	4		-	-	-		-	-	-
27	Galena Boulevard	Locust St	-	-	-	10	-	6	-	-	7	4	-	-	-	1	1	4		-	-	-		-	-	-
30	Galena Boulevard	Stolp Ave	-	-	-	11	-	-	-	-	8	4	3	2	-	1	1	4		1	3	-		-	-	-
31	Galena Boulevard	Lincoln Ave	-	-	-	8	-	2	-	-	8	4	-	3	-	1	1	2		1	3	-		1	-	-
32	Galena Boulevard	Root St	-	-	-	9	-	-	-	-	8	4	-	-	-	1	1	3		1	-	-		2	-	-
33	Galena Boulevard	Union St	-	-	-	6	-	2	-	-	8	4	-	-	-	1	1	3		-	-	-		-	-	-
34	Galena Boulevard	Ohio St	-	-	-	11	-	6	-	-	8	4	4	-	-	1	1	4		1	4	-		-	-	-
35	Farnsworth Blvd	E New York Street	-	-	-	5	-	12	-	-	11	7	2	-	-	1	1	4		1	-	-		-	-	-
36	Farnsworth Blvd	Liberty Street	-	-	-	9	-	6	-	-	8	7		-	-	1	1	4		1	-	-		-	-	-
37	Farnsworth Blvd	Front Street	-	-	-	10	-	2	-	-	8	8		-	-	1	1	4		1	-	-		-	-	-
38	Farnsworth Blvd	Sheffer Road	-	-	-	5	-	7	-	-	8	8	1	-	-	1	1	4		1	-	-		-	-	-
39	Farnsworth Blvd	Indian Trail	-	-	-	2	-	13	-	-	8	8	4	-	-	1	1	4		1	-	-		-	-	-
40	Farnsworth Blvd	Reckinger Road	-	-	-	5	-	7	-	-	8	8	1	-	-	1	1	2		-	-	-		-	-	-
41	Farnsworth Blvd	Molitor Road	-	-	-	7	-	8	-	-	2	2	2	-	-	1	1	4		1	4	-		-	-	-
42	Farnsworth Blvd	Prem Outlet Blvd	-	-	-	8	4	4	-	-	2	2	4	-	-	1	1	4		-	4	-		-	-	-
43	Farnsworth Blvd	Bilter Road	-	-	-	5	-	15	-	-	4	4	3	-	-	1	1	4		1	4	-		-	-	-
44	Church Road	Bilter Road	-	-	-	3	-	9	-	-	8	7	1	-	-	1	1	4		1	4	-		-	-	-
45	Eola Road	New York Street	-	-	-	8	-	12	-	13	-	8	4	-	-	1	1	4		1	-	-		-	-	-
46	Eola Road	Mc Coy Road	-	-	-	8	-	8	-	8	-	8	-	-	-	1	1	4		-	-	-		-	-	-
47	Eola Road	Long Grove Drive	-	-	-	6	-	6	-	-	6	6	-	-	-	1	1	4		1	-	-		-	-	-
48	Eola Road	Waubonsie V School	-	-	-	7	-	8	-	-	8	8	4	-	-	1	1	4		-	4	-		-	-	-
49	Eola Road	Ogden Avenue	-	-	-	10	-	8	-	-	8	7	-	-	-	1	1	3		1	-	-		-	-	-
50	Eola Road	Montgomery Rd	-	-	-	8	-	8	-	-	8	8	-	-	-	1	-	4		-	-	-		-	-	-
51	Eola Road	Keating Drive	-	-	-	5	-	8	-	8	-	8	-	-	-	1	1	4		1	4	-		-	-	-
52	Eola Road	Hafenrichter Rd	-	-	-	8	-	8	-	-	4	4	4	-	-	1	1	4		-	4	-		-	-	-
53	Eola Road	Wolf's CrossingRd	-	-	-	4	-	8	-	8	-	6	4	-	-	1	1	4		-	4	-		-	-	-
54	Eola Road	Bilter Rd/I88	-	-	-	11	-	4	-	4	-	3	-	-	-	1	1	2		-	3	-		-	-	-
55	Eola Road	Deihl Rd/I88	-	-	-	7	-	3	-	-	-	-	1	-	-	1	1	3		-	3	-		-	-	-
56	New York Street	Lincoln Avenue	-	-	-	9	-	2	-	-	8	4	3	3	-	1	1	3		-	-	-		-	-	-
57	New York Street	Root Street	-	-	-	9	-	-	-	-	8	4	1	-	-	1	1	3		1	-	-		2	-	-
58	New York Street	Union Street	-	-	-	10	-	-	-	-	7	4	-	-	-	1	1	4		-	-	-		-	-	-
59	New York Street	Ohio Street	-	-	-	8	-	8	-	-	12	7	4	-	-	1	1	2		1	4	-		-	-	-
60	New York Street	Kautz/County Ln	-	-	-	6	-	10	-	-	6	6	4	-	-	1	1	4		1	3	-		-	-	-
61	New York Street	Asbury Drive	-	-	-	6	-	8	-	6	-	5	4	-	-	1	1	-		-	-	-		-	-	-
62	New York Street	Oakhurst Drive	-	-	-	5	-	8	-	8	-	5	4	-	-	1	1	4		-	-	-		-	-	-
63	New York Street	Frontenac Street	-	-	-	6	-	8	-	-	6	5	4	-	-	1	1	4		1	-	-		-	-	-
64	New York Street	Commons Drive	-	-	-	5	-	11	-	-	2	2	-	-	-	1	1	4		1	-	-		-	-	-
65	New York Street	Station Blvd	-	-	-	3	-	14	-	-	4	4	-	-	-	1	1	4		1	-	-		-	-	-
66	New York Street	Entrance No.6	-	-	-	5	-	11	-	-	-	-	-	-	-	1	1	4		-	4	-		-	-	-
67	New York Street	Vaughn Road	-	-	-	6	-	8	-	-	8	8	4	-	-	1	1	4		1	3	-		-	-	-
68	River Street	Prairie Street	-	-	-	10	-	2	-	5	-	2	2	-	-	1	1	3		-	-	-		-	-	-
69	River Street	North Avenue	-	-	-	5	-	6	-	4	-	2	4	-	-	1	-	3		-	-	-		1	-	-
70	River Street	Benton Street	-	-	-	7	-	2	-	-	8	4	3	3	-	1	1	3		-	3	-		1	-	-
71	River Street	Downer's Plc	-	-	-	9	-	-	-	-	8	4	3	3	-	1	1	3		-	3	-		1	-	-
72	River Street	Galena Blvd	-	-	-	8	-	-	-	-	8	4	2	2	-	1	1	3		1	3	-		2	-	-

City of Aurora Traffic Signal Inventory

Serial No.	Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
73	River Street	New York Street	-	-	-	6	2	-	-	-	8	4	4	2	-	1	1	3		-	3	-		1	-	-
74	Broadway Street	Sullivan Road	-	-	-	14	-	8	-	-	-	-	1	-	-	1	1	4		-	-	-		-	-	-
75	Broadway Street	Indian Trail	-	-	-	7	-	8	-	-	-	-	-	-	-	1	1	4		-	-	-		-	-	-
76	Broadway Street	Illinois Avenue	-	-	-	9	-	8	-	6	-	4	4	-	-	1	1	2		-	-	-		-	-	-
77	Broadway Street	Post Office	-	-	-	10	-	4	-	4	-	3	-	-	-	1	1	3		-	-	-		1	-	-
78	Broadway Street	ATC/Roundhouse	-	-	-	8	4	4	-	4	-	3	-	-	-	1	1	4		-	-	-		1	-	-
79	Broadway Street	Spring Street	-	-	-	5	5	1	-	-	6	4	-	-	-	1	1	3		-	-	-		1	-	-
80	Broadway Street	New York Street	-	-	-	12	-	2	-	-	8	4	2	3	-	1	1	3		1	3	-		4	-	-
81	Broadway Street	Galena Blvd	-	-	-	12	-	2	-	-	8	4	3	3	-	1	1	3		-	3	-		2	-	-
82	Broadway Street	Downer's Plc	-	-	-	10	-	6	-	-	8	4	3	4	-	1	1	4		1	4	-		2	-	-
83	Broadway Street	Benton Street	-	-	-	12	-	2	-	-	8	4	3	3	-	1	1	3		3	-	-		1	-	-
84	Broadway Street	North Avenue	-	-	-	5	-	6	-	6	-	3	-	-	-	1	1	4		-	-	-		1	-	-
85	Broadway Street	Ashland Avenue	-	-	-	7	-	4	-	-	-	-	-	-	-	1	-	-		-	-	-		-	-	-
86	Illinois Avenue	Randall Road	-	-	-	4	-	8	-	8	-	8	1	-	-	1	-	4		-	-	-		-	-	-
87	Illinois Avenue	Elmwood Drive	-	-	-	4	-	8	-	8	-	8	1	-	-	1	-	4		-	-	-		-	-	-
88	Illinois Avenue	Highland Avenue	-	-	-	4	-	8	-	7	-	8	1	-	-	1	-	-		-	-	-		-	-	-
89	Randall Road	Sullivan Road	-	-	-	8	-	8	-	-	-	-	-	-	-	1	-	4		-	-	-		-	-	-
90	Liberty Street	Asbury Drive	-	-	-	4	-	8	-	-	7	7	-	-	-	1	-	4		-	-	-		-	-	-
91	Liberty Street	Commons Drive	-	-	-	8	-	8	-	-	6	6	-	-	-	1	1	4		1	-	-		-	-	-
92	Liberty Street	Station Blvd	-	-	-	12	-	6	-	-	8	6	2	4	-	1	1	4		1	4	-		-	-	-
93	Liberty Street	Meijer Drive	-	-	-	4	-	8	-	8	-	8	2	-	-	1	1	4		-	4	-		-	-	-
94	Indian Trail	Randall Road	-	-	-	8	-	8	-	8	-	4	2	-	-	1	1	4		1	-	-		-	-	-
95	Indian Trail	Edgelawn Drive	-	-	-	6	-	8	-	8	-	4	2	-	-	1	1	4		-	-	-		-	-	-
96	Indian Trail	Elmwood Drive	-	-	-	4	-	8	-	8	-	4	2	-	-	1	1	4		-	-	-		-	-	-
97	Indian Trail	Nantucket Road	-	-	-	4	-	4	-	4	-	3	-	-	-	1	1	4		-	-	-		-	-	-
98	Indian Trail	Highland Avenue	-	-	-	5	-	8	-	4	-	3	1	-	-	1	1	4		-	-	-		-	-	-
99	Indian Trail	Mitchell Road	-	-	-	4	-	8	-	-	-	-	3	-	-	1	-	4		-	-	-		-	-	-
100	Indian Trail	Church Road	-	-	-	7	-	8	-	-	-	-	2	-	-	1	-	4		-	-	-		1	-	-
101	Indian Trail	Ohio Street	-	-	-	6	-	4	-	-	4	4	3	-	-	1	1	3		-	3	-		-	-	-
102	Indian Trail	Felten Road	-	-	-	4	-	8	-	8	-	7	-	-	-	1	-	4		-	-	-		-	-	-
103	Indian Trail	Stonebridge West	-	-	-	10	-	4	-	4	-	4	-	-	-	1	-	4		-	-	-		-	-	-
104	Indian Trail	Stonebridge East	-	-	-	8	-	2	-	4	-	4	-	-	-	1	-	3		-	-	-		-	-	-
105	North Aurora Rd	Pennsbury Lane	-	-	-	8	-	4	-	6	-	4	-	-	-	1	-	4		-	4	-		-	-	-
106	Fifth Avenue	Waterford Drive	-	-	-	9	-	2	-	-	2	2	1	-	-	1	1	-		-	4	-		-	-	-
107	Hill Avenue	Fifth Avenue	-	-	-	4	-	8	-	4	-	4	2	-	-	1	1	4		1	4	-		-	-	-
108	Hill Avenue	Fire Station 5	-	-	-	8	-	-	-	-	-	-	-	-	-	1	1	3		-	-	-		-	-	-
109	Hill Avenue	Montgomery Rd	-	-	-	4	-	8	-	-	-	-	4	-	-	1	1	4		1	4	-		-	-	-
110	Montgomery Rd	Waterford Drive	-	-	-	7	-	7	-	-	8	4	1	-	-	1	-	4		-	-	-		-	-	-
111	Montgomery Rd	Middlebury Drive	-	-	-	3	-	8	-	-	8	8	2	-	-	1	-	4		-	-	-		-	-	-
112	Montgomery Rd	Frontenac Street	-	-	-	8	-	2	-	2	4	6	-	-	-	1	-	3		-	-	-		-	-	-
113	Commons Drive	Raintree Road	-	-	-	10	-	4	-	-	4	4	-	-	-	1	1	4		-	-	-		-	-	-
114	Commons Drive	Mc Coy Drive	-	-	-	9	-	8	-	-	2	2	-	-	-	1	1	3		-	1	-		1	-	-
115	McCoy Drive	Entrance No.3	-	-	-	11	-	4	-	-	2	2	-	-	-	1	1	4		-	-	-		-	-	-
116	McCoy Drive	Entrance No.2	-	-	-	11	-	3	-	-	2	2	-	-	-	1	1	4		-	-	-		-	-	-
117	McCoy Drive	Gregory Street	-	-	-	4	4	4	-	-	8	8	-	-	-	1	1	4		-	4	-		2	-	-
118	McCoy Drive	Frontenac Street	-	-	-	9	-	4	-	-	8	8	-	-	-	1	1	2		1	4	-		2	-	-
																									-	-
		TOTALS =	**0**	**0**	**0**	**839**	**26**	**661**	**0**	**183**	**496**	**529**	**156**	**47**	**0**	**116**	**96**	**398**	**0**	**40**	**123**	**0**	**0**	**31**	**0**	**0**

A1 = 3 Section Heads - Incandescent
A2 = 4 Section Heads - Incandescent
A3 = 5 Section Heads - Incandescent
A4 = 3 Section Heads - LED
A5 = 4 Section Heads - LED
A6 = 5 Section Heads - LED
A7-A = Pedestrian Heads-Incandescent
A7-B = Pedestrian Heads-LED, Non countdown
A7-C = Pedestrian Heads- LED Countdown

A8 = Pedestrian Push Buttons
A9 = Combo-mounted Luminaires
A10= Illuminated Signs
A11 = Master Controllers
A12 =Local Cabinets
A13 = UPS System
A14 = Emergency Vehicle Preemption
A15 = Radar Detectors
A16 = Pan Tilt Zoom Camera System

A17 = Video Vehicle Detectors
A18 = FLIR Cameras
A19 = Transceivers
A20 = Radio Communications
A29 = Magnetic Detectors
A30 = Accessible Pedestrian Signals

TRAFFIC SIGNAL MAINTENANCE CONTRACT

SCHEDULE OF ROUTINE MAINTENANCE PAY ITEMS

City of Aurora

The following is a listing of the Routine Maintenance Pay Items that the Contractor shall be responsible to maintain under this Contract with the City of Aurora. The quantity of each pay item is provided to enable the Contractor to readily determine the Routine Maintenance Pay Items at a given location. This list is comprised of existing equipment owned and/or maintained by the City of Aurora, and new equipment planned for construction and/or installation during the term of this Contract. The list includes locations of traffic signals, emergency vehicle preemption systems, flashing beacons, street lighting, pump stations, and vehicle counting stations. The Routine Maintenance Pay Items at a given location vary due to construction, maintenance transfers, new installations, maintenance agreement revisions, and removals. The Schedule of Routine Maintenance Pay Items shall not be considered all-inclusive or comprehensive in any way, and the City of Aurora shall not be held accountable for any errors on the list.

THE ROUTINE MAINTENANCE PORTION OF THE SCHEDULE OF PRICES FOR THIS CONTRACT (PAY ITEMS T-1 TO T-11, L-1 to L-4, and PS-1) CONTAINS BID QUANTITIES THAT REFLECT AN ESTIMATED TYPICAL MONTH'S MAINTENANCE.

CITY OF AURORA LOCATION LISTING

			ROUTINE MAINTENANCE PAY ITEMS																
	Primary Street	**Secondary Street**	TRAFFIC SIGNAL LOCATION **T-1**	TEMPORARY SIGNAL LOCATION **T-2**	FLASHING BEACON OVERHEAD MOUNT **T-3**	FLASHING BEACON LOW MOUNT **T-4**	VEHICLE COUNT STATION **T-5**	VIDEO COMM CABINET **T-6**	LAYER II (DATA LINK) SWITCH **T-7**	LAYER III NETWORK SWITCH **T-8**	REMOTE CONTROL VIDEO SYSTEM **T-9**	PEDESTRIAN TRAFFIC SIGNAL LOCATION **T-10**	EVP TRAFFIC SIGNAL LOCATION **T-11**	LUMINAIRE **L-1**	UNDERPASS LIGHTING **L-2**	SIGN LIGHTING **L-3**	WASHINGTON STREET NO PARKING SIGNS **L-4**	PUMP STATION **PS-1**
	Traffic Signal / Combination Ltg																		
1	Lake Street	Jericho Road	**1**											1				
2	Lake Street	Prairie Street	**1**											1				
3	Lake Street	Gale Street	**1**											-				
4	Lake Street	Benton Street	**1**											3				
5	Lake Street	Downer's Plc	**1**											3				
6	Lake Street	Galena Boulevard	**1**											3				
7	Lake Street	New York Street	**1**											3				
8	Lake Street	West Park (APD)	**1**											-				
9	Lake Street	Illinois Avenue	**1**											-				
10	Lake Street	Northgate (Entpr)	**1**											-				
11	Lake Street	Northgate (KFC)	**1**											-				
12	Lake Street	Indian Trail	**1**											-				
13	Lake Street	Aurora Commons	**1**											-				
14	Lake Street	Sullivan Road	**1**											-				
15	Lake Street	Northgate (McD)	**1**											-				
16	Galena Boulevard	Constitution Dr	**1**											-				
17	Galena Boulevard	Walmart	**1**											-				
18	Galena Boulevard	Reimer Dr	**1**											-				
19	Galena Boulevard	Edgelawn Dr	**1**											-				
20	Galena Boulevard	Randall Rd	**1**											2				
21	Galena Boulevard	Gladstone Ave	**1**											-				
22	Galena Boulevard	Commwealth Ave	**1**											-				
23	Galena Boulevard	Elmwood Dr	**1**											2				
24	Galena Boulevard	Lancaster Ave	**1**											2				
25	Galena Boulevard	Highland Ave	**1**											-				
26	Galena Boulevard	View Street	**1**											-				
27	Galena Boulevard	Locust Street	**1**											-				
30	Galena Boulevard	Stolp Avenue	**1**											3				
31	Galena Boulevard	Lincoln Avenue	**1**											-				
32	Galena Boulevard	Root Street	**1**											-				
33	Galena Boulevard	Union Street	**1**											-				
34	Galena Boulevard	Ohio Street	**1**											4				
35	Farnsworth Boulevard	E New York Street	**1**											2				
36	Farnsworth Boulevard	Liberty Street	**1**															
37	Farnsworth Boulevard	Front Street	**1**															
38	Farnsworth Boulevard	Sheffer Road	**1**											1				
39	Farnsworth Boulevard	Indian Trail	**1**											4				
40	Farnsworth Boulevard	Reckinger Road	**1**											1				
41	Farnsworth Boulevard	Molitor Road	**1**											2				
42	Farnsworth Boulevard	Prem Outlet Blvd	**1**											4				
43	Farnsworth Boulevard	Bilter Road	**1**											3				
44	Church Road	Bilter Road	**1**											1				
45	Eola Road	New York Street	**1**											4				
46	Eola Road	Mc Coy Road	**1**											-				
47	Eola Road	Long Grove Drive	**1**											-				
48	Eola Road	Waubonsie V School	**1**											4				
49	Eola Road	Ogden Avenue	**1**											-				
50	Eola Road	Montgomery Road	**1**											-				
51	Eola Road	Keating Drive	**1**											-				
52	Eola Road	Hafenrichter Rd	**1**											4				

CITY OF AURORA LOCATION LISTING

			ROUTINE MAINTENANCE PAY ITEMS																
	Primary Street	**Secondary Street**	TRAFFIC SIGNAL LOCATION **T-1**	TEMPORARY SIGNAL LOCATION **T-2**	FLASHING BEACON OVERHEAD MOUNT **T-3**	FLASHING BEACON LOW MOUNT **T-4**	VEHICLE COUNT STATION **T-5**	VIDEO COMM CABINET **T-6**	LAYER II (DATA LINK) SWITCH **T-7**	LAYER III NETWORK SWITCH **T-8**	REMOTE CONTROL VIDEO SYSTEM **T-9**	PEDESTRIAN TRAFFIC SIGNAL LOCATION **T-10**	EVP TRAFFIC SIGNAL LOCATION **T-11**	LUMINAIRE **L-1**	UNDERPASS LIGHTING **L-2**	SIGN LIGHTING **L-3**	WASHINGTON STREET NO PARKING SIGNS **L-4**	PUMP STATION **PS-1**
53	Eola Road	Wolf's Crossing Road	**1**											4				
54	Eola Road	Bilter Rd/I88	**1**											-				
55	Eola Road	Deihl Rd/I88	**1**											1				
56	New York Street	Lincoln Avenue	**1**											3				
57	New York Street	Root Street	**1**											1				
58	New York Street	Union Street	**1**											-				
59	New York Street	Ohio Street	**1**											4				
60	New York Street	Kautz/County Ln	**1**											4				
61	New York Street	Asbury Drive	**1**											4				
62	New York Street	Oakhurst Drive	**1**											4				
63	New York Street	Frontenac Street	**1**											4				
64	New York Street	Commons Drive	**1**											-				
65	New York Street	Station Blvd	**1**											-				
66	New York Street	Entrance No.6	**1**											-				
67	New York Street	Vaughn Road	**1**											4				
68	River Street	Prairie Street	**1**											2				
69	River Street	North Avenue	**1**											4				
70	River Street	Benton Street	**1**											3				
71	River Street	Downer's Plc	**1**											3				
72	River Street	Galena Blvd	**1**											2				
73	River Street	New York Street	**1**											4				
74	Broadway Street	Sullivan Road	**1**											1				
75	Broadway Street	Indian Trail	**1**											-				
76	Broadway Street	Illinois Avenue	**1**											4				
77	Broadway Street	Post Office	**1**											-				
78	Broadway Street	ATC/Roundhouse	**1**											-				
79	Broadway Street	Spring Street	**1**											-				
80	Broadway Street	New York Street	**1**											2				
81	Broadway Street	Galena Blvd	**1**											3				
82	Broadway Street	Downer's Plc	**1**											3				
83	Broadway Street	Benton Street	**1**											3				
84	Broadway Street	North Avenue	**1**											-				
85	Broadway Street	Ashland Avenue	**1**											-				
86	Illinois Avenue	Randall Road	**1**											1				
87	Illinois Avenue	Elmwood Drive	**1**											1				
88	Illinois Avenue	Highland Avenue	**1**											1				
89	Randall Road	Sullivan Road	**1**											-				
90	Liberty Street	Asbury Drive	**1**											-				
91	Liberty Street	Commons Drive	**1**											-				
92	Liberty Street	Station Blvd	**1**											2				
93	Liberty Street	Meijer Drive	**1**											2				
94	Indian Trail	Randall Road	**1**											2				
95	Indian Trail	Edgelawn Drive	**1**											2				
96	Indian Trail	Elmwood Drive	**1**											2				
97	Indian Trail	Nantucket Road	**1**											-				
98	Indian Trail	Highland Avenue	**1**											1				
99	Indian Trail	Mitchell Road	**1**											3				
100	Indian Trail	Church Road	**1**											2				
101	Indian Trail	Ohio Street	**1**											3				
102	Indian Trail	Felten Road	**1**											-				
103	Indian Trail	Stonebridge West	**1**											-				

CITY OF AURORA LOCATION LISTING

			ROUTINE MAINTENANCE PAY ITEMS															
	Primary Street	**Secondary Street**	TRAFFIC SIGNAL LOCATION **T-1**	TEMPORARY SIGNAL LOCATION **T-2**	FLASHING BEACON OVERHEAD MOUNT **T-3**	FLASHING BEACON LOW MOUNT **T-4**	VEHICLE COUNT STATION **T-5**	VIDEO COMM CABINET **T-6**	LAYER II (DATA LINK) SWITCH **T-7**	LAYER III NETWORK SWITCH **T-8**	REMOTE CONTROL VIDEO SYSTEM **T-9**	PEDESTRIAN TRAFFIC SIGNAL LOCATION **T-10**	EVP TRAFFIC SIGNAL LOCATION **T-11**	LUMINAIRE **L-1**	UNDERPASS LIGHTING **L-2**	SIGN LIGHTING **L-3**	WASHINGTON STREET NO PARKING SIGNS **L-4**	PUMP STATION **PS-1**
104	Indian Trail	Stonebridge East	**1**											-				
105	North Aurora Road	Pennsbury Lane	**1**											-				
106	Fifth Avenue	Waterford Drive	**1**											1				
107	Hill Avenue	Fifth Avenue	**1**											2				
108	Hill Avenue	Fire Station 5	**1**											-				
109	Hill Avenue	Montgomery Rd	**1**											4				
110	Montgomery Road	Waterford Drive	**1**											1				
111	Montgomery Road	Middlebury Drive	**1**											2				
112	Montgomery Road	Frontenac Street	**1**											-				
113	Commons Drive	Raintree Road	**1**											-				
114	Commons Drive	Mc Coy Drive	**1**											-				
115	McCoy Drive	Entrance No.3	**1**											-				
116	McCoy Drive	Entrance No.2	**1**											-				
117	McCoy Drive	Gregory Street	**1**											-				
118	McCoy Drive	Frontenac Street	**1**											-				
			TRAFFIC SIGNAL LOCATION **T-1**	TEMPORARY SIGNAL LOCATION **T-2**	FLASHING BEACON OVERHEAD MOUNT **T-3**	FLASHING BEACON LOW MOUNT **T-4**	VEHICLE COUNT STATION **T-5**	VIDEO COMM CABINET **T-6**	LAYER II (DATA LINK) SWITCH **T-7**	LAYER III NETWORK SWITCH **T-8**	REMOTE CONTROL VIDEO SYSTEM **T-9**	PEDESTRIAN TRAFFIC SIGNAL LOCATION **T-10**	EVP TRAFFIC SIGNAL LOCATION **T-11**	LUMINAIRE **L-1**	UNDERPASS LIGHTING **L-2**	SIGN LIGHTING **L-3**	WASHINGTON STREET NO PARKING SIGNS **L-4**	PUMP STATION **PS-1**
Totals			**116**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**156**	**0**	**0**	**0**	**0**

- **VILLAGE OF LOMBARD**

- **EQUIPMENT LIST**
- **SCHEDULE OF ROUTINE MAINTENANCE PAY ITEMS** [redacted]

TRAFFIC SIGNAL MAINTENANCE CONTRACT

EQUIPMENT LIST

Village of Lombard

The following is a listing of the equipment that the Contractor shall be responsible to maintain under this Contract with the Village of Lombard. The approximate number and type of equipment is listed to provide the Contractor with a breakdown of the inventory for bidding purposes. This list is comprised of existing equipment owned and/or maintained by the Village of Lombard, and new equipment planned for construction and/or installation during the term of this Contract. The list includes traffic signal locations and number of signal appurtenances. The number of traffic signal locations varies due to construction, maintenance transfers, new installations, maintenance agreement revisions, and removals. The equipment list shall not be considered all-inclusive or comprehensive in any way, and the Village of Lombard shall not be held accountable for any errors on the list.

Traffic Signals under 2018 Lombard Jurisdiction (Best Information)

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
Main St	22nd St	8		8				8									2								
Main St	16th St				4	4				8						1	2								
Main St	Morris Ave				7		6			8						1	2								
Main St	Edward St				7		6			8						1	2								
Main St	Glenbard East HS				8		2			4						1	2								
Main St	Wilson Ave				4		8			8						1	2								
Main St	Madison St				2		8			8						1	2								
Main St	Hickory St				4		6			8						1	2								
Main St	Maple St				4		8			8						1	2								
Main St	Parkside Ave				7		4			6						1	2								
Main St	St Charles Rd				5		8			8						1	2								
Main St	Pleasant Ave Ped				6					2							1								
Highland Ave	Yorktown South				12		8		2							1	4								
Highland Ave	Yorktown Central				8		6		2							1	2								
Highland Ave	Majestic Dr				7		6		2							1	2								
Highland Ave	22nd St	6		12				8									3								
Highland Ave	Fire Station 2	2															1								
Westmore-Meyers Rd	Highridge Rd	6		4				4									2								
Westmore-Meyers Rd	Wilson Ave	7		6				8									2								
Westmore-Meyers Rd	Jackson St	7		2				8									2								
Westmore-Meyers Rd	Madison St	6		4				8									2								
Westmore-Meyers Rd	Washington Blvd			10				8									2								
Westmore-Meyers Rd	Maple St	6		4				8									2								
22nd St	Convention Way				9		2		4								2								
22nd St	Grace St	4		8				8									2								
Finley Rd	Eisenhower Ln	4		8				2									2								
Finley Rd	22nd St	6		10				9									2								
Finley Rd	Oak Creek Dr				10		8			8						1	2								
Finley Rd	Pinebrook Ped	6						4									1								
Finley Rd	Sunset Knoll Ped	6						2																	
St. Charles Rd	Grace St				12	6	4			8						1	4								
St. Charles Rd	Fire Station 1	3																							
St. Charles Rd	Park Ave	7								8						1	2								
St. Charles Rd	Elizabeth St				8		4			8						1	2								
St. Charles Rd	Crescent Blvd				5		4			6						1	2								
Rt 53	St Charles Rd				4		8			8						1	2								
Rt 38	Marianos				7		7			4						1	2								
	TOTALS =	**84**		**76**	**140**	**10**	**113**	**85**	**10**	**126**						**20**	**72**								

A1 = 3 Section Heads - Incandescent
A2 = 4 Section Heads - Incandescent
A3 = 5 Section Heads - Incandescent
A4 = 3 Section Heads - LED
A5 = 4 Section Heads - LED
A6 = 5 Section Heads - LED
A7-A = Pedestrian Heads-Incandescent
A7-B = Pedestrian Heads-LED, Non countdown
A7-C = Pedestrian Heads- LED Countdown

A8 = Pedestrian Push Buttons
A9 = Combo-mounted Luminaires
A10= Illuminated Signs
A11 = Master Controllers
A12 =Local Cabinets
A13 = UPS System
A14 = Emergency Vehicle Preemption
A15 = Radar Detectors
A16 = Pan Tilt Zoom Camera System

A17 = Video Vehicle Detectors
A18 = FLIR Cameras
A19 = Transceivers
A20 = Radio Communications
A29 = Magnetic Detectors
A30 = Accessible Pedestrian Signals

TRAFFIC SIGNAL MAINTENANCE CONTRACT

SCHEDULE OF ROUTINE MAINTENANCE PAY ITEMS

Village of Lombard

The following is a listing of the Routine Maintenance Pay Items that the Contractor shall be responsible to maintain under this Contract with the Village of Lombard. The quantity of each pay item is provided to enable the Contractor to readily determine the Routine Maintenance Pay Items at a given location. This list is comprised of existing equipment owned and/or maintained by the Village of Lombard, and new equipment planned for construction and/or installation during the term of this Contract. The list includes locations of traffic signals, emergency vehicle preemption systems, flashing beacons, street lighting, pump stations, and vehicle counting stations. The Routine Maintenance Pay Items at a given location vary due to construction, maintenance transfers, new installations, maintenance agreement revisions, and removals. The Schedule of Routine Maintenance Pay Items shall not be considered all-inclusive or comprehensive in any way, and the Village of Lombard shall not be held accountable for any errors on the list.

THE ROUTINE MAINTENANCE PORTION OF THE SCHEDULE OF PRICES FOR THIS CONTRACT (PAY ITEMS T-1 TO T-11, L-1 to L-4, and PS-1) CONTAINS BID QUANTITIES THAT REFLECT AN ESTIMATED TYPICAL MONTH'S MAINTENANCE.

LOMBARD LOCATION LISTING

		ROUTINE MAINTENANCE PAY ITEMS															
	LOCATION	TRAFFIC SIGNAL LOCATION **T-1**	TEMPORARY SIGNAL LOCATION **T-2**	FLASHING BEACON OVERHEAD MOUNT **T-3**	FLASHING BEACON LOW MOUNT **T-4**	VEHICLE COUNT STATION **T-5**	VIDEO COMM CABINET **T-6**	LAYER II (DATA LINK) SWITCH **T-7**	LAYER III NETWORK SWITCH **T-8**	REMOTE CONTROL VIDEO SYSTEM **T-9**	PEDESTRIAN TRAFFIC SIGNAL LOCATION **T-10**	EVP TRAFFIC SIGNAL LOCATION **T-11**	LUMINAIRE **L-1**	UNDERPASS LIGHTING **L-2**	SIGN LIGHTING **L-3**	WASHINGTON STREET NO PARKING SIGNS **L-4**	PUMP STATION **PS-1**
	Traffic Signal / Combination Lighting																
1	**Main St./22nd St.**	**1**															
2	**Main St./16th St.**	**1**															
3	**Main St./ Morris Ave.**	**1**															
4	**Main St./Edward St.**	**1**															
5	**Main St./Glenbard East HS**	**1**															
6	**Main St./Wilson Ave.**	**1**															
7	**Main St./Madison St.**	**1**															
8	**Main St./Hickory St.**	**1**															
9	**Main St./Maple St.**	**1**															
10	**Main St./Parkside Ave.**	**1**															
11	**Main St./St. Charles Rd.**	**1**															
12	**Main St./Pleasant Ave. Ped.**										**1**						
13	**Highland Ave./Yorktown South**	**1**															
14	**Highland Ave./Yorktown Central**	**1**															
15	**Highland Ave./Majestic Dr.**	**1**															
16	**Highland Ave./22nd St.**	**1**															
17	**Highland Ave./Fire Station 2**											**1**					
18	**Westmore-Meyers Rd./Highridge Rd.**	**1**															
19	**Westmore-Meyers Rd./Wilson Rd.**	**1**															
20	**Westmore-Meyers Rd./Jackson St.**	**1**															
21	**Westmore-Meyers Rd./Madison St.**	**1**															
22	**Westmore-Meyers Rd./Washington Blvd.**	**1**															
23	**Westmore-Meyers Rd./Maple St.**	**1**															
24	**22nd St./Convention Way**	**1**															
25	**22nd St./Grace St.**	**1**															
26	**Finley Rd./Eisenhower Ln.**	**1**															
27	**Finley Rd./22nd St.**	**1**															
28	**Finley Rd./Oak Creek Dr.**	**1**															
29	**Finley Rd./Pinebrook Ped.**										**1**						
30	**Finley Rd./Sunset Knoll Ped.**										**1**						
31	**St. Charles Rd./Grace St.**	**1**															
32	**St. Charles Rd./Fire Station 1**											**1**					
33	**St. Charles Rd./Park Ave.**	**1**															
34	**St. Charles Rd./Elizabeth St.**	**1**															
35	**St. Charles Rd./Crescent Blvd.**	**1**															
36	**Rt. 53/St. Charles Rd.**	**1**															
37	**Rt. 38/Marianos (late 2017 anticipated completion)**	**1**															
		TRAFFIC SIGNAL LOCATION **T-1**	TEMPORARY SIGNAL LOCATION **T-2**	FLASHING BEACON OVERHEAD MOUNT **T-3**	FLASHING BEACON LOW MOUNT **T-4**	VEHICLE COUNT STATION **T-5**	VIDEO COMM CABINET **T-6**	LAYER II (DATA LINK) SWITCH **T-7**	LAYER III NETWORK SWITCH **T-8**	REMOTE CONTROL VIDEO SYSTEM **T-9**	PEDESTRIAN TRAFFIC SIGNAL LOCATION **T-10**	EVP TRAFFIC SIGNAL LOCATION **T-11**	LUMINAIRE **L-1**	UNDERPASS LIGHTING **L-2**	SIGN LIGHTING **L-3**	WASHINGTON STREET NO PARKING SIGNS **L-4**	PUMP STATION **PS-1**
	Totals	**32**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**

- **CITY OF NAPERVILLE**

- **EQUIPMENT LIST**
- **SCHEDULE OF ROUTINE MAINTENANCE PAY ITEMS** [redacted]

TRAFFIC SIGNAL MAINTENANCE CONTRACT

EQUIPMENT LIST

City of Naperville

The following is a listing of the equipment that the Contractor shall be responsible to maintain under this Contract with the City of Naperville. The approximate number and type of equipment is listed to provide the Contractor with a breakdown of the inventory for bidding purposes. This list is comprised of existing equipment owned and/or maintained by the City of Naperville, and new equipment planned for construction and/or installation during the term of this Contract. The list includes traffic signal locations and number of signal appurtenances. The number of traffic signal locations varies due to construction, maintenance transfers, new installations, maintenance agreement revisions, and removals. The equipment list shall not be considered all-inclusive or comprehensive in any way, and the City of Naperville shall not be held accountable for any errors on the list.

Traffic Signals under City of Naperville Jurisdiction maintained by City of Naperville

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
WASHINGTON	BAUER				12					6	5				1		1					1		14	
WASHINGTON	IROQUOIS				5	2	2			4	4	1			1		1					1		12	
WASHINGTON	DIEHL						16			8	8	4		1	1		1		1			1		24	
WASHINGTON	SHUMAN				6		10			8	8				1		1					1		12	
WASHINGTON	AMOCO				9		6			4	4				1		1					1		15	
NAPER	PLANK				6		8			0	0	2			1		1					1			
WASHINGTON	GARTNER				4		8			8	4	2			1		1					1		12	
WASHINGTON	EDWARDS HOSP.				7		2			8	8	4		1	1		1					1		12	
WASHINGTON	MARTIN				6		4			4	4				1		1					1		12	
WASHINGTON	HILLSIDE				4		8			8	8				1		1					1		12	
WASHINGTON	AURORA				3	4	4			6	2	2		1	1		1		1			1		12	
WASHINGTON	CHICAGO				5		8			8	4	2	4		1		1					1	1	16	8
WASHINGTON	JEFFERSON				5		4			8	4	2			1		1					1		16	8
WASHINGTON	VAN BUREN				7		2			4	2	2			1		1					1		16	
WASHINGTON	BENTON				4		8			8	8	2			1		1					1		16	8
WASHINGTON	SCHOOL				4		2			6	4	1			1		1					1		16	
WASHINGTON	NORTH				6		4			6	2	2			1		1					1		16	
WASHINGTON	5TH				6	4	2			6	2	1			1		1					1		16	
CHICAGO	ELLSWORTH				10					6	6	1			1		1					1	1	6	6
WEST	MARTIN				4	4	4			4	4	1			1		1					1		12	
WEST	HILLSIDE				5		4			4	4	1			1		1					1		12	
AURORA	WEST				3	4	6			6	6	3			1		1		1			1		12	
AURORA	NCHS-ROTARY HILL				8		4			8	8	2			1		1					1		12	

Traffic Signals under City of Naperville Jurisdiction maintained by City of Naperville

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
AURORA	EAGLE				4		4			4	4	2			1		1					1		9	
AURORA	MAIN				6		4			8	8	2			1		1					1		6	
AURORA	WEBSTER				4		8			8	8	4			1		1	4				1			
DIEHL	TELLABS				4		8			8	8	4			1		1					1			
DIEHL	NALCO				7		2			8	8	4		1	1		1					1			
104TH	BOOK				4		8			6	6	4		1	1		1					1			
103RD	BOOK				8		2			4	4	2			1		1					1			
BOOK	CONAN DOYLE				4		8			8	8	4			1		1					1			
RICKERT	BOOK				7		8			8	8	4			1		1					1			
RICKERT	WEST				4		10			8	8	1			1		1					1			
NAPER	BAILEY				3		10			8	8	4			1		1					1			
NAPER	FOX RUN-MKT. MEADOWS				3		12			6	6	4			1		1					1			
CULPEPPER	NAPER				8		4			8	4	4			1		1					1			
GREEN TRAILS	NAPER				5		6			4	2	2			1		1					1			
NAPER	DUNROBIN				8		4			2	2	2			1		1					1			
95TH	CEDAR GLADE				2		10			6	6	3			1		1	4				1			
95TH	WILDCAT WAY				5		4			2	2	1			1		1	3				1			
95TH	SKYLANE				4		8			6	6	2			1		1			4		1			
95TH	BOOK				8		8			8	8	4		1	1		1					1			
NAPER-PLAINFIELD	95TH				16		4			8	8	4		1	1		1					1			
NAPER-PLAINFIELD	GATESHEAD				4		8			8	8	3			1		1					1			
NAPER-PLAINFIELD	LEVERENZ				4		8			8	8	3			1		1					1			
87TH	NAPER				4		8			8	8	4			1		1					1			

Traffic Signals under City of Naperville Jurisdiction maintained by City of Naperville

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
NAPER	STONEYBROOK				11		2			8	8			1	1		1					1			
87TH	BOOK				6		8			4	4	4		1	1		1					1			
83RD	BOOK				7		2			2	2	2			1	1	1					1			
95TH	WOLF'S CROSSING				2		8			8	8	2			1		1					1			
95TH	248TH				5		12			8	8	4			1		1					1			
95TH	DEERING BAY				4		8			8	8	4			1		1					1			
95TH	REFLECTION				4		8			8	8	4			1		1					1			
111TH	248TH				4		8			8	8	4			1		1					1	1		
103RD	248TH				4		10			4	4	2			1	1	1					1	1		
TRUMPET	WOLF'S CROSSING				10		2			2	2				1	1	1					1	1		
TRUMPET	248TH				8		2			2	2				1	1	1					1	1		
NORTH AURORA	FRONTENAC				8		8			8	8	4			1		1					1			
NORTH AURORA	GENESEE				7		2			0	0	2			1		1			3		1			
NORTH AURORA	WESTON RIDGE				6		4			4	4	2			1		1					1			
NORTH AURORA	FAIRWAY				8		9			8	8	1		1	1		1					1			
US 34	N. AURORA/RAYMOND				18		2			6	5			1	1	1	1					1			
US 34	RIVER				6		8			8	4				1	1	1					1			
US 34	FIFTH				8		4			8	8				1	1	1					1			
US 34	ROYAL ST. GEORGE				4		8			8	4				1	1	1					1			
US 34	BENEDETTI				10		4			8	8	4			1	1	1					1			
US 34	MILL				3		10			8	8				1	1	1					1			
US 34	WASHINGTON				6		10			8	8	2			1	1	1		1			1			8
US 34	LOOMIS				6		8			8	8	1			1	1	1					1			

Traffic Signals under City of Naperville Jurisdiction maintained by City of Naperville

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
US 34	COLUMBIA				10		4			8	8	1			1	1	1					1			
RAYMOND	RIVERBROOK CENTER				4		8			6	6				1		1					1			
RAYMOND	RIVER/BROOKDALE				4		10			8	8				1		1					1			
NORTH AURORA	TUDOR				8		4			8	8	4			1		1					1			
US 34	FORT HILL				5		8			4	8				1	1	1					1			
US 34	RICKERT				12		3			2	2				1	1	1					1			
US 34	FELDOTT				4		8			6	6				1	1	1					1			
US 34	AURORA				4		8			8	8			1	1	1	1					1			
US 34	JEFFERSON				4		8			8	5				1	1	1					1			
US 34	QUINCY				8		8			6	6	2			1	1	1					1			
AURORA	CAR DEALERSHIP				4		8			8	8	4			1		1					1			
AURORA	FORT HILL				7		8			8	8	4			1		1					1			
JEFFERSON	FORT HILL				8		8			4	4	3			1		1					1			
AURORA	BIRCHWOOD				7		5			6	6				1		1					1			
AURORA	RIVER				4		8			8	8	1			1		1					1			
RICKERT	SEQUOIA				6		8			6	6	4			1		1					1			
WASHINGTON	ROYCE				4		8			2	2	2			1		1					1		12	
WASHINGTON	NAPER				8		1			2	2	3			1		1		1			1		12	
WASHINGTON	RING				4	5	4			4	4	2			1		1					1		12	
WASHINGTON	87TH				7		2			2	2	1			1		1					1		12	
WASHINGTON	BAILEY				4		8			8	8			1	1		1					1		12	
NAPER	RIVERWOODS				4		8			8	4	2			1		1					1		12	
HASSERT BLVD (111TH)	BOOK				8		8			8	8	4			1		1					1	1		

Traffic Signals under City of Naperville Jurisdiction maintained by City of Naperville

Primary Street	Secondary Street	A1	A2	A3	A4	A5	A6	A7-A	A7-B	A7-C	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A29	A30
HASSERT BLVD (111TH)	CHOKEBERRY				6		8			8	8	4			1	1	1					1	1		
5TH	MILL				3		6			4	4	2			1		1								
104TH	NAPERVILLE PLAINFIELD				4		8			8	8	4			1		1								
COUNTRY CLUB	DIEHL				5		10			6	6	3			1	1	1								
	TOTALS =	**0**	**0**	**0**	**566**	**23**	**604**	**0**	**0**	**598**	**551**	**198**	**4**	**13**	**96**	**21**	**96**	**11**	**5**	**7**	**0**	**93**	**8**	**390**	**38**

A1 = 3 Section Heads - Incandescent
A2 = 4 Section Heads - Incandescent
A3 = 5 Section Heads - Incandescent
A4 = 3 Section Heads - LED
A5 = 4 Section Heads - LED
A6 = 5 Section Heads - LED
A7-A = Pedestrian Heads-Incandescent
A7-B = Pedestrian Heads-LED, Non countdown
A7-C = Pedestrian Heads- LED Countdown
A8 = Pedestrian Push Buttons
A9 = Combo-mounted Luminaires
A10= Illuminated Signs
A11 = Master Controllers
A12 =Local Cabinets
A13 = UPS System
A14 = Emergency Vehicle Preemption
A15 = Radar Detectors
A16 = Pan Tilt Zoom Camera System
A17 = Video Vehicle Detectors
A18 = FLIR Cameras
A19 = Transceivers
A20 = Radio Communications
A29 = Magnetic Detectors
A30 = Accessible Pedestrian Signals

CITY OF NAPERVILLE MAINTAINED BEACON / UNDERPASS LIGHTING / PUMP STATION / STREET LIGHTING / SIGN LIGHTING INVENTORY

Location	A21	A22	A23	A24	A25	A26	A27	A28
83RD/CHANDELLE							2	
GARTNER/CATALPA							2	
ROYCE/BRADDOCK							2	
BOOK/S OF CONAN DOYLE							2	
248TH/LAPP							2	
BAUER/EAGLE		2						
CHARLES/BALMORAL		2						
MILL/LAURA		2						
HILLSIDE/LOOMIS		2						
WEST SIDE WASHINGTON - BENTON TO JACKSON								5
EAST SIDE WASHINGTON - VAN BUREN TO CHICAGO								5
WEST - MARTIN TO OSLER	4							
TOTALS	**4**	**8**	**0**	**0**	**0**	**0**	**10**	**10**

LEGEND

A21 = Overhead Beacon
A22 = Post Mount Beacon
A23 = Underpass Lighting
A24 = Pump Station
A25 = Street Lighting
A26 = Sign Lighting
A27 = Solar Flashers
A28 = Washington Street No Parking Signs

TRAFFIC SIGNAL MAINTENANCE CONTRACT

SCHEDULE OF ROUTINE MAINTENANCE PAY ITEMS

City of Naperville

The following is a listing of the Routine Maintenance Pay Items that the Contractor shall be responsible to maintain under this Contract with the City of Naperville. The quantity of each pay item is provided to enable the Contractor to readily determine the Routine Maintenance Pay Items at a given location. This list is comprised of existing equipment owned and/or maintained by the City of Naperville, and new equipment planned for construction and/or installation during the term of this Contract. The list includes locations of traffic signals, emergency vehicle preemption systems, flashing beacons, street lighting, pump stations, and vehicle counting stations. The Routine Maintenance Pay Items at a given location vary due to construction, maintenance transfers, new installations, maintenance agreement revisions, and removals. The Schedule of Routine Maintenance Pay Items shall not be considered all-inclusive or comprehensive in any way, and the City of Naperville shall not be held accountable for any errors on the list.

THE ROUTINE MAINTENANCE PORTION OF THE SCHEDULE OF PRICES FOR THIS CONTRACT (PAY ITEMS T-1 TO T-11, L-1 to L-4, and PS-1) CONTAINS BID QUANTITIES THAT REFLECT AN ESTIMATED TYPICAL MONTH'S MAINTENANCE.

NAPERVILLE LOCATION LISTING

		ROUTINE MAINTENANCE PAY ITEMS															
	LOCATION	TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
	Traffic Signal / Combination Lighting																
1	WASHINGTON/BAUER	1						1									
2	WASHINGTON/IROQUOIS	1						1					1				
3	WASHINGTON/DIEHL	1						1		1			4				
4	WASHINGTON/SHUMAN	1						1									
5	WASHINGTON/AMOCO	1						1									
6	NAPER/PLANK	1											2				
7	WASHINGTON/GARTNER	1						1					2				
8	WASHINGTON/EDWARDS HOSP.	1						1					4				
9	WASHINGTON/MARTIN	1						1									
10	WASHINGTON/HILLSIDE	1						1									
11	WASHINGTON/AURORA	1						1		1			2				
12	WASHINGTON/CHICAGO	1							1				2				
13	WASHINGTON/JEFFERSON	1						1					2				
14	WASHINGTON/VAN BUREN	1						1					2				
15	WASHINGTON/BENTON	1						1					2				
16	WASHINGTON/SCHOOL	1						1					1				
17	WASHINGTON/NORTH	1						1					2				
18	WASHINGTON/5TH	1						1					1				
19	CHICAGO/ELLSWORTH	1						1					1				
20	WEST/MARTIN	1						1					1				
21	WEST/HILLSIDE	1						1					1				
22	AURORA/WEST	1						1		1			3				
23	AURORA/NCHS-ROTARY HILL	1						1					2				
24	AURORA/EAGLE	1						1					2				
25	AURORA/MAIN	1						1					2				
26	AURORA/WEBSTER	1						1					4				
27	DIEHL/TELLABS	1											4				
28	DIEHL/NALCO	1											4				
29	104TH/BOOK	1											4				
30	103RD/BOOK	1											2				
31	BOOK/CONAN DOYLE	1											4				
32	RICKERT/BOOK	1											4				
33	RICKERT/WEST	1											1				
34	NAPER/BAILEY	1											4				
35	NAPER/FOX RUN-MKT. MEADOWS	1											4				
36	CULPEPPER/NAPER	1											4				
37	GREEN TRAILS/NAPER	1											2				
38	NAPER/DUNROBIN	1											2				
39	95TH/CEDAR GLADE	1											3				
40	95TH/WILDCAT WAY	1											1				
41	95TH/SKYLANE	1											2				
42	95TH/BOOK	1											4				
43	NAPER-PLAINFIELD/95TH	1											4				
44	NAPER-PLAINFIELD/GATESHEAD	1											3				
45	NAPER-PLAINFIELD/LEVERENZ	1											3				
46	87TH/NAPER	1											4				
47	NAPER/STONEYBROOK	1															
48	87TH/BOOK	1											4				
49	83RD/BOOK	1											2				
50	95TH/WOLF'S CROSSING	1											2				
51	95TH/248TH	1											4				
52	95TH/DEERING BAY	1											4				
53	95TH/REFLECTION	1											4				
54	111TH/248TH	1											4				
55	103RD/248TH	1											2				
56	TRUMPET/WOLF'S CROSSING	1															
57	TRUMPET/248TH	1															
58	NORTH AURORA/FRONTENAC		1										4				
59	NORTH AURORA/GENESEE		1										2				
60	NORTH AURORA/WESTON RIDGE	1											2				
61	NORTH AURORA/FAIRWAY	1											1				
62	US 34/N. AURORA/RAYMOND	1															
63	US 34/RIVER	1															

NAPERVILLE LOCATION LISTING

		ROUTINE MAINTENANCE PAY ITEMS															
	LOCATION	TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
64	US 34/FIFTH	1															
65	US 34/ROYAL ST. GEORGE	1															
66	US 34/BENEDETTI	1											4				
67	US 34/MILL	1															
68	US 34/WASHINGTON	1							1	1			2				
69	US 34/LOOMIS	1											1				
70	US 34/COLUMBIA	1											1				
71	RAYMOND/RIVERBROOK CENTER	1															
72	RAYMOND/RIVER/BROOKDALE	1															
73	NORTH AURORA/TUDOR	1											4				
74	US 34/FORT HILL	1															
75	US 34/RICKERT	1															
76	US 34/FELDOTT	1															
77	US 34/AURORA	1															
78	US 34/JEFFERSON	1															
79	US 34/QUINCY	1											2				
80	AURORA/CAR DEALERSHIP	1											4				
81	AURORA/FORT HILL	1											4				
82	JEFFERSON/FORT HILL	1											3				
83	AURORA/BIRCHWOOD	1															
84	AURORA/RIVER	1											1				
85	RICKERT/SEQUOIA	1											4				
86	WASHINGTON/ROYCE	1						1					2				
87	WASHINGTON/NAPER	1							1	1			3				
88	WASHINGTON/RING	1						1					2				
89	WASHINGTON/87TH	1						1					1				
90	WASHINGTON/BAILEY	1						1									
91	NAPER/RIVERWOODS	1						1					2				
92	HASSERT BLVD (111TH)/BOOK	1											4				
93	HASSERT BLVD (111TH)/CHOKEBERRY	1											4				
94	5TH/MILL	1											2				
95	104TH/NAPERVILLE PLAINFIELD	1											4				
96	COUNTRY CLUB/DIEHL	1											3				
97	83RD/CHANDELLE				2												
98	GARTNER/CATALPA				2												
99	ROYCE/BRADDOCK				2												
100	BOOK/S OF CONAN DOYLE				2												
101	248TH/LAPP				2												
102	BAUER/EAGLE				2												
103	CHARLES/BALMORAL				2												
104	MILL/LAURA				2												
105	HILLSIDE/LOOMIS				2												
106	WASHINGTON STREET NO PARKING SIGNS SYSTEM COMPLETE															1	
107	NAPERVILLE MUNICIPAL CENTER								1								
108	WEST - MARTIN TO OSLER			4													
		TRAFFIC SIGNAL LOCATION T-1	TEMPORARY SIGNAL LOCATION T-2	FLASHING BEACON OVERHEAD MOUNT T-3	FLASHING BEACON LOW MOUNT T-4	VEHICLE COUNT STATION T-5	VIDEO COMM CABINET T-6	LAYER II (DATA LINK) SWITCH T-7	LAYER III NETWORK SWITCH T-8	REMOTE CONTROL VIDEO SYSTEM T-9	PEDESTRIAN TRAFFIC SIGNAL LOCATION T-10	EVP TRAFFIC SIGNAL LOCATION T-11	LUMINAIRE L-1	UNDERPASS LIGHTING L-2	SIGN LIGHTING L-3	WASHINGTON STREET NO PARKING SIGNS L-4	PUMP STATION PS-1
	Totals	94	2	4	18	0	0	29	4	5	0	0	198	0	0	1	0

- **INDEX FOR SUPPLEMENTAL SPECIFICATIONS**
- **CHECK SHEET FOR RECURRING SPECIAL PROVISIONS**
- **CHECK SHEET FOR LOCAL ROADS & STREETS SPECIAL PROVISIONS**
- **BDE SPECIAL PROVISIONS**

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2017

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS, frequently used RECURRING SPECIAL PROVISIONS, and LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction
(Adopted 4-1-16) (Revised 1-1-17)

SUPPLEMENTAL SPECIFICATIONS

Illinois Department of Transportation

Check Sheet For Recurring Special Provisions

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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The Following Local Roads And Streets Recurring Special Provisions Indicated By An “X” Are Applicable To This Contract And Are Included By Reference:

Local Roads And Streets Recurring Special Provisions

This schedule contains the prevailing wage rates required to be paid for work performed on or after Monday, June 5, 2017 on public works projects in this County. Pursuant to 820 ILCS 130/4, public bodies in this County that have active public works projects are responsible for notifying all contractors and subcontractors working on those public works projects of the change (if any) to rates that were previously in effect. The failure of a public body to provide such notice does not relieve contractors or subcontractors of their obligations under the Prevailing Wage Act, including the duty to pay the relevant prevailing wage in effect at the time work subject to the Act is performed.

DUPAGE COUNTY
PREVAILING WAGE
RATES EFFECTIVE JUNE
5, 2017

TradeTitle	Region	Type	Class	Base Wage	Foreman Wage	M-F OT	OSA	OSH	H/W	Pension	Vacation	Training
ASBESTOS ABT-GEN	All	All		40.40	40.95	1.5	1.5	2.0	14.23	11.57	0.00	0.50
ASBESTOS ABT-MEC	All	BLD		37.46	39.96	1.5	1.5	2.0	11.62	11.06	0.00	0.72
BOILERMAKER	All	BLD		47.07	51.30	2.0	2.0	2.0	6.97	18.13	0.00	0.40
BRICK MASON	All	BLD		44.88	49.37	1.5	1.5	2.0	10.25	15.30	0.00	0.85
CARPENTER	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.60	0.00	0.63
CEMENT MASON	All	All		44.25	46.25	2.0	1.5	2.0	13.65	15.51	0.00	0.65
CERAMIC TILE FNSHER	All	BLD		37.81	37.81	1.5	1.5	2.0	10.55	10.12	0.00	0.65
COMMUNICATION TECH	All	BLD		33.00	35.40	1.5	1.5	2.0	10.10	17.19	2.07	0.61
ELECTRIC PWR EQMT OP	All	All		37.89	51.48	1.5	1.5	2.0	5.00	11.75	0.00	0.38
ELECTRIC PWR EQMT OP	All	HWY		40.59	55.15	1.5	1.5	2.0	5.25	12.59	0.00	0.71
ELECTRIC PWR GRNDMAN	All	All		29.30	51.48	1.5	1.5	2.0	5.00	9.09	0.00	0.29
ELECTRIC PWR GRNDMAN	All	HWY		32.50	55.15	1.5	1.5	2.0	5.25	10.09	0.00	0.58
ELECTRIC PWR LINEMAN	All	All		45.36	51.48	1.5	1.5	2.0	5.00	14.06	0.00	0.45
ELECTRIC PWR LINEMAN	All	HWY		48.59	55.15	1.5	1.5	2.0	5.25	15.07	0.00	0.85

ELECTRIC PWR TRK DRV	All	All		30.34	51.48	1.5	1.5	2.0	5.00	9.40	0.00	0.30
ELECTRIC PWR TRK DRV	All	HWY		31.40	53.29	1.5	1.5	2.0	5.00	9.73	0.00	0.31
ELECTRICIAN	All	BLD		38.74	42.74	1.5	1.5	2.0	12.10	20.81	4.43	0.68
ELEVATOR CONSTRUCTOR	All	BLD		51.94	58.43	2.0	2.0	2.0	14.43	14.96	4.16	0.90
FENCE ERECTOR	NE	All		38.34	40.34	1.5	1.5	2.0	13.15	13.10	0.00	0.40
FENCE ERECTOR	W	ALL		45.06	48.66	2.0	2.0	2.0	10.52	20.76	0.00	0.70
GLAZIER	All	BLD		41.70	43.20	1.5	2.0	2.0	13.94	18.99	0.00	0.94
HT/FROST INSULATOR	All	BLD		48.45	50.95	1.5	1.5	2.0	11.47	12.16	0.00	0.72
IRON WORKER	E	All		46.20	48.20	2.0	2.0	2.0	13.65	21.52	0.00	0.35
IRON WORKER	W	All		45.56	49.20	2.0	2.0	2.0	11.02	21.51	0.00	0.70
LABORER	All	All		40.20	40.95	1.5	1.5	2.0	14.23	11.57	0.00	0.50
LATHER	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.60	0.00	0.63
MACHINIST	All	BLD		45.35	47.85	1.5	1.5	2.0	7.26	8.95	1.85	0.00
MARBLE FINISHERS	All	All		33.45	33.45	1.5	1.5	2.0	10.25	14.44	0.00	0.46
MARBLE MASON	All	BLD		44.13	48.54	1.5	1.5	2.0	10.25	14.97	0.00	0.59
MATERIAL TESTER I	All	All		30.20	30.20	1.5	1.5	2.0	14.23	11.57	0.00	0.50
MATERIALS TESTER II	All	All		35.20	35.20	1.5	1.5	2.0	14.23	11.57	0.00	0.50
MILLWRIGHT	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.60	0.00	0.63
OPERATING ENGINEER	All	BLD	1	49.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	2	47.80	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	3	45.25	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	4	43.50	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	5	52.85	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	6	50.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	7	52.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	FLT		37.00	37.00	1.5	1.5	2.0	17.65	12.65	1.90	1.35
OPERATING ENGINEER	All	HWY	1	47.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	2	46.75	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30

OPERATING ENGINEER	All	HWY	3	44.70	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	4	43.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	5	42.10	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	6	50.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	7	48.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
ORNAMNTL IRON WORKER	E	All		45.00	47.50	2.0	2.0	2.0	13.55	17.94	0.00	0.65
ORNAMNTL IRON WORKER	W	All		45.06	48.66	2.0	2.0	2.0	10.52	20.76	0.00	0.70
PAINTER	All	All		42.93	44.93	1.5	1.5	1.5	10.30	8.20	0.00	1.35
PAINTER SIGNS	All	BLD		33.92	38.09	1.5	1.5	1.5	2.60	2.71	0.00	0.00
PILEDRIVER	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.60	0.00	0.63
PIPEFITTER	All	BLD		47.50	50.50	1.5	1.5	2.0	9.55	17.85	0.00	2.07
PLASTERER	All	BLD		44.63	47.31	1.5	1.5	2.0	10.25	15.03	0.00	0.85
PLUMBER	All	BLD		48.25	50.25	1.5	1.5	2.0	14.09	12.65	0.00	1.18
ROOFER	All	BLD		41.70	44.70	1.5	1.5	2.0	8.28	11.59	0.00	0.53
SHEETMETAL WORKER	All	BLD		45.77	47.77	1.5	1.5	2.0	10.65	14.10	0.00	0.82
SPRINKLER FITTER	All	BLD		47.20	49.20	1.5	1.5	2.0	12.25	11.55	0.00	0.55
STEEL ERECTOR	E	All		42.07	44.07	2.0	2.0	2.0	13.45	19.59	0.00	0.35
STEEL ERECTOR	W	All		45.06	48.66	2.0	2.0	2.0	10.52	20.76	0.00	0.70
STONE MASON	All	BLD		44.88	49.37	1.5	1.5	2.0	10.25	15.30	0.00	0.85
TERRAZZO FINISHER	All	BLD		39.54	39.54	1.5	1.5	2.0	10.55	11.79	0.00	0.67
TERRAZZO MASON	All	BLD		43.38	43.38	1.5	1.5	2.0	10.55	13.13	0.00	0.79
TILE MASON	All	BLD		43.84	47.84	1.5	1.5	2.0	10.55	11.40	0.00	0.99
TRAFFIC SAFETY WRKR	All	HWY		33.50	35.10	1.5	1.5	2.0	8.10	7.62	0.00	0.25
TRUCK DRIVER	All	All	1	36.30	36.85	1.5	1.5	2.0	8.10	9.76	0.00	0.15
TRUCK DRIVER	All	All	2	36.45	36.85	1.5	1.5	2.0	8.10	9.76	0.00	0.15
TRUCK DRIVER	All	All	3	36.65	36.85	1.5	1.5	2.0	8.10	9.76	0.00	0.15
TRUCK DRIVER	All	All	4	36.85	36.85	1.5	1.5	2.0	8.10	9.76	0.00	0.15
TUCKPOINTER	All	BLD		43.62	44.62	1.5	1.5	2.0	10.25	14.11	0.00	0.48

Explanations

DUPAGE COUNTY

IRON WORKERS AND FENCE ERECTOR (WEST) - West of Route 53.

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.

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.

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.

COMMUNICATIONS TECHNICIAN

Low voltage installation, maintenance and removal of telecommunication facilities (voice, sound, data and video) including telephone and data inside wire, interconnect, terminal equipment, central offices, PABX, fiber optic cable and equipment, micro waves, V-SAT, bypass, CATV, WAN (wide area networks), 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

Diver. Diver Wet Tender, Diver Tender, ROV Pilot, ROV Tender

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 yeards; 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".

This schedule contains the prevailing wage rates required to be paid for work performed on or after Monday, June 5, 2017 on public works projects in this County. Pursuant to 820 ILCS 130/4, public bodies in this County that have active public works projects are responsible for notifying all contractors and subcontractors working on those public works projects of the change (if any) to rates that were previously in effect. The failure of a public body to provide such notice does not relieve contractors or subcontractors of their obligations under the Prevailing Wage Act, including the duty to pay the relevant prevailing wage in effect at the time work subject to the Act is performed.

KANE COUNTY
PREVAILING WAGE
RATES EFFECTIVE JUNE
5, 2017

TradeTitle	Region	Type	Class	Base Wage	Foreman Wage	M-F OT	OSA	OSH	H/W	Pension	Vacation	Training
ASBESTOS ABT-GEN	All	All		40.40	40.95	1.5	1.5	2.0	14.23	11.57	0.00	0.50
ASBESTOS ABT-MEC	All	BLD		37.46	39.96	1.5	1.5	2.0	11.62	11.06	0.00	0.72
BOILERMAKER	All	BLD		47.07	51.30	2.0	2.0	2.0	6.97	18.13	0.00	0.40
BRICK MASON	All	BLD		44.88	49.37	1.5	1.5	2.0	10.25	15.30	0.00	0.85
CARPENTER	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.61	0.00	0.63
CEMENT MASON	All	All		43.95	45.95	2.0	1.5	2.0	10.00	19.66	0.00	0.50
CERAMIC TILE FNSHER	All	BLD		37.81	37.81	1.5	1.5	2.0	10.55	10.12	0.00	0.65
COMMUNICATION TECH	N	BLD		37.39	39.49	1.5	1.5	2.0	11.30	12.97	0.00	0.66
COMMUNICATION TECH	S	BLD		39.02	41.27	1.5	1.5	2.0	10.90	10.93	0.00	1.37
ELECTRIC PWR EQMT OP	All	All		37.89	51.48	1.5	1.5	2.0	5.00	11.75	0.00	0.38
ELECTRIC PWR EQMT OP	All	HWY		40.59	55.15	1.5	1.5	2.0	5.25	12.59	0.00	0.71
ELECTRIC PWR GRNDMAN	All	ALL		29.30	51.48	1.5	1.5	2.0	5.00	9.09	0.00	0.29
ELECTRIC PWR GRNDMAN	All	HWY		32.50	55.15	1.5	1.5	2.0	5.25	10.09	0.00	0.58
ELECTRIC PWR LINEMAN	All	All		45.36	51.48	1.5	1.5	2.0	5.00	14.06	0.00	0.45
ELECTRIC PWR LINEMAN	All	HWY		48.59	55.15	1.5	1.5	2.0	5.25	15.07	0.00	0.85

ELECTRIC PWR TRK DRV	All	All		30.34	51.48	1.5	1.5	2.0	5.00	9.40	0.00	0.30
ELECTRIC PWR TRK DRV	All	HWY		31.40	53.29	1.5	1.5	2.0	5.00	9.73	0.00	0.31
ELECTRICIAN	N	All		46.02	50.42	1.5	1.5	2.0	14.07	15.33	0.00	0.92
ELECTRICIAN	S	BLD		48.63	52.88	1.5	1.5	2.0	11.31	13.62	0.00	1.70
ELEVATOR CONSTRUCTOR	All	BLD		51.94	58.43	2.0	2.0	2.0	14.43	14.96	4.16	0.90
FENCE ERECTOR	All	All		45.56	49.20	2.0	2.0	2.0	11.02	21.51	0.00	0.70
GLAZIER	All	BLD		41.70	43.20	1.5	2.0	2.0	13.94	18.99	0.00	0.94
HT/FROST INSULATOR	All	BLD		49.95	52.45	1.5	1.5	2.0	11.62	12.26	0.00	0.72
IRON WORKER	All	All		45.56	49.20	2.0	2.0	2.0	11.02	21.51	0.00	0.70
LABORER	All	All		40.20	40.95	1.5	1.5	2.0	13.52	12.28	0.00	0.50
LATHER	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.61	0.00	0.63
MACHINIST	All	BLD		45.35	47.85	1.5	1.5	2.0	7.26	8.95	1.85	0.00
MARBLE FINISHERS	All	All		33.45	33.45	1.5	1.5	2.0	10.25	14.44	0.00	0.46
MARBLE MASON	All	BLD		44.13	48.54	1.5	1.5	2.0	10.25	14.97	0.00	0.59
MATERIAL TESTER I	All	All		30.20	30.20	1.5	1.5	2.0	13.52	12.28	0.00	0.50
MATERIALS TESTER II	All	All		35.20	35.20	1.5	1.5	2.0	13.52	12.28	0.00	0.50
MILLWRIGHT	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.61	0.00	0.63
OPERATING ENGINEER	All	BLD	1	49.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	2	47.80	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	3	45.25	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	4	43.50	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	5	52.85	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	6	50.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	7	52.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	FLT		37.00	37.00	1.5	1.5	2.0	17.65	12.65	1.90	1.35
OPERATING ENGINEER	All	HWY	1	47.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	2	46.75	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	3	44.70	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30

OPERATING ENGINEER	All	HWY	4	43.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	5	42.10	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	6	50.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	7	48.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
ORNAMNTL IRON WORKER	All	All		45.06	48.66	2.0	2.0	2.0	10.52	20.76	0.00	0.70
PAINTER	All	All		42.93	44.93	1.5	1.5	1.5	10.30	8.20	0.00	1.35
PAINTER SIGNS	All	BLD		33.92	38.09	1.5	1.5	1.5	2.60	2.71	0.00	0.00
PILEDRIVER	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.61	0.00	0.63
PIPEFITTER	All	BLD		47.50	50.50	1.5	1.5	2.0	9.55	17.85	0.00	2.07
PLASTERER	All	BLD		42.25	44.79	1.5	1.5	2.0	13.65	9.50	5.00	0.65
PLUMBER	All	BLD		48.25	50.25	1.5	1.5	2.0	14.09	12.65	0.00	1.18
ROOFER	All	BLD		41.70	44.70	1.5	1.5	2.0	8.28	11.59	0.00	0.53
SHEETMETAL WORKER	All	BLD		45.77	47.77	1.5	1.5	2.0	10.65	14.10	0.00	0.82
SIGN HANGER	All	BLD		26.07	27.57	1.5	1.5	2.0	3.80	3.55	0.00	0.00
SPRINKLER FITTER	All	BLD		47.20	49.20	1.5	1.5	2.0	12.25	11.55	0.00	0.55
STEEL ERECTOR	All	All		45.56	49.20	2.0	2.0	2.0	11.02	21.51	0.00	0.70
STONE MASON	All	BLD		44.88	49.37	1.5	1.5	2.0	10.25	15.30	0.00	0.85
TERRAZZO FINISHER	All	BLD		39.54	39.54	1.5	1.5	2.0	10.55	11.79	0.00	0.67
TERRAZZO MASON	All	BLD		43.38	43.38	1.5	1.5	2.0	10.55	13.13	0.00	0.79
TILE MASON	All	BLD		43.84	47.84	1.5	1.5	2.0	10.55	11.40	0.00	0.99
TRAFFIC SAFETY WRKR	All	HWY		33.50	35.10	1.5	1.5	2.0	8.10	7.62	0.00	0.25
TRUCK DRIVER	All	All	1	36.30	36.85	1.5	1.5	2.0	8.10	9.76	0.00	0.15
TRUCK DRIVER	All	All	2	36.45	36.85	1.5	1.5	2.0	8.10	9.76	0.00	0.15
TRUCK DRIVER	All	All	3	36.65	36.85	1.5	1.5	2.0	8.10	9.76	0.00	0.15
TRUCK DRIVER	All	All	4	36.85	36.85	1.5	1.5	2.0	8.10	9.76	0.00	0.15
TUCKPOINTER	All	BLD		44.90	45.90	1.5	1.5	2.0	8.30	14.29	0.00	0.48

Explanations

KANE COUNTY

ELECTRICIANS AND COMMUNICATIONS TECHNICIAN (NORTH) - Townships of Burlington, Campton, Dundee, Elgin, Hampshire, Plato, Rutland, St. Charles (except the West half of Sec. 26, all of Secs. 27, 33, and 34, South half of Sec. 28, West half of Sec. 35), Virgil and Valley View CCC and Elgin Mental Health Center.

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.

COMMUNICATIONS TECHNICIAN

Construction, installation, maintenance and removal of telecommunication facilities (voice, sound, data and video), telephone, security systems, fire alarm systems that are a component of a multiplex system and share a common cable, and data inside wire, interconnect, terminal equipment, central offices, PABX 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 ENGINEERS - FLOATING

Diver. Diver Wet Tender, Diver Tender, ROV Pilot, ROV Tender

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".

This schedule contains the prevailing wage rates required to be paid for work performed on or after Monday, June 5, 2017 on public works projects in this County. Pursuant to 820 ILCS 130/4, public bodies in this County that have active public works projects are responsible for notifying all contractors and subcontractors working on those public works projects of the change (if any) to rates that were previously in effect. The failure of a public body to provide such notice does not relieve contractors or subcontractors of their obligations under the Prevailing Wage Act, including the duty to pay the relevant prevailing wage in effect at the time work subject to the Act is performed.

KENDALL COUNTY
PREVAILING WAGE
RATES EFFECTIVE JUNE
5, 2017

TradeTitle	Region	Type	Class	Base Wage	Foreman Wage	M-F OT	OSA	OSH	H/W	Pension	Vacation	Training
ASBESTOS ABT-GEN	All	All		39.40	39.95	1.5	1.5	2.0	13.42	11.28	0.00	0.50
ASBESTOS ABT-MEC	All	BLD		37.46	39.96	1.5	1.5	2.0	11.62	11.06	0.00	0.72
BOILERMAKER	All	BLD		47.07	51.30	2.0	2.0	2.0	6.97	18.13	0.00	0.40
BRICK MASON	All	BLD		44.88	49.37	1.5	1.5	2.0	10.25	15.30	0.00	0.85
CARPENTER	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.61	0.00	0.63
CEMENT MASON	All	All		43.95	45.95	2.0	1.5	2.0	10.00	19.66	0.00	0.50
CERAMIC TILE FNSHER	All	BLD		37.81	37.81	1.5	1.5	2.0	10.55	10.12	0.00	0.65
COMMUNICATION TECH	All	BLD		39.02	41.27	1.5	1.5	2.0	10.90	10.93	0.00	1.37
ELECTRIC PWR EQMT OP	All	All		37.89	51.48	1.5	1.5	2.0	5.00	11.75	0.00	0.38
ELECTRIC PWR EQMT OP	All	HWY		40.59	55.15	1.5	1.5	2.0	5.25	12.59	0.00	0.71
ELECTRIC PWR GRNDMAN	All	All		29.30	51.48	1.5	1.5	2.0	5.00	9.09	0.00	0.29
ELECTRIC PWR GRNDMAN	All	HWY		32.50	55.15	1.5	1.5	2.0	5.25	10.09	0.00	0.58
ELECTRIC PWR LINEMAN	All	All		45.36	51.48	1.5	1.5	2.0	5.00	14.06	0.00	0.45
ELECTRIC PWR LINEMAN	All	HWY		48.59	55.15	1.5	1.5	2.0	5.25	15.07	0.00	0.85

ELECTRIC PWR TRK DRV	All	All		30.34	51.48	1.5	1.5	2.0	5.00	9.40	0.00	0.30
ELECTRIC PWR TRK DRV	All	HWY		31.40	53.29	1.5	1.5	2.0	5.00	9.73	0.00	0.31
ELECTRICIAN	All	BLD		48.63	52.88	1.5	1.5	2.0	11.31	13.62	0.00	1.70
ELEVATOR CONSTRUCTOR	All	BLD		51.94	58.43	2.0	2.0	2.0	14.43	14.96	4.16	0.90
FENCE ERECTOR	All	All		45.56	49.20	2.0	2.0	2.0	11.02	21.51	0.00	0.70
GLAZIER	All	BLD		41.70	43.20	1.5	2.0	2.0	13.94	18.99	0.00	0.94
HT/FROST INSULATOR	All	BLD		49.95	52.45	1.5	1.5	2.0	11.62	12.26	0.00	0.72
IRON WORKER	All	All		45.56	49.20	2.0	2.0	2.0	11.02	21.51	0.00	0.70
LABORER	All	All		40.20	40.95	1.5	1.5	2.0	13.52	12.28	0.00	0.50
LATHER	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.61	0.00	0.63
MACHINIST	All	BLD		45.35	47.85	1.5	1.5	2.0	7.26	8.95	1.85	0.00
MARBLE FINISHERS	All	All		33.45	33.45	1.5	1.5	2.0	10.25	14.44	0.00	0.46
MARBLE MASON	All	BLD		44.13	48.54	1.5	1.5	2.0	10.25	14.97	0.00	0.59
MATERIAL TESTER I	All	All		30.20	30.20	1.5	1.5	2.0	13.52	12.28	0.00	0.50
MATERIALS TESTER II	All	All		35.20	35.20	1.5	1.5	2.0	13.52	12.28	0.00	0.50
MILLWRIGHT	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.61	0.00	0.63
OPERATING ENGINEER	All	BLD	1	49.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	2	47.80	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	3	45.25	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	4	43.50	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	5	52.85	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	6	50.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	7	52.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	FLT		37.00	37.00	1.5	1.5	2.0	17.65	12.65	1.90	1.35
OPERATING ENGINEER	All	HWY	1	47.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	2	46.75	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	3	44.70	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	4	43.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30

OPERATING ENGINEER	All	HWY	5	42.10	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	6	50.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	7	48.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
ORNAMNTL IRON WORKER	All	All		45.56	49.20	2.0	2.0	2.0	11.02	21.51	0.00	0.70
PAINTER	All	All		42.93	44.93	1.5	1.5	1.5	10.30	8.20	0.00	1.35
PAINTER SIGNS	All	BLD		33.92	38.09	1.5	1.5	1.5	2.60	2.71	0.00	0.00
PILEDRIVER	All	All		45.35	47.35	1.5	1.5	2.0	11.79	17.61	0.00	0.63
PIPEFITTER	All	BLD		47.50	50.50	1.5	1.5	2.0	9.55	17.85	0.00	2.07
PLASTERER	All	BLD		42.25	44.79	1.5	1.5	2.0	13.65	9.50	5.00	0.65
PLUMBER	All	BLD		48.25	50.25	1.5	1.5	2.0	14.09	12.65	0.00	1.18
ROOFER	All	BLD		41.70	44.70	1.5	1.5	2.0	8.28	11.59	0.00	0.53
SHEETMETAL WORKER	All	BLD		45.77	47.77	1.5	1.5	2.0	10.65	14.10	0.00	0.82
SPRINKLER FITTER	All	BLD		47.20	49.20	1.5	1.5	2.0	12.25	11.55	0.00	0.55
STEEL ERECTOR	All	All		45.06	48.66	2.0	2.0	2.0	10.52	20.76	0.00	0.70
STONE MASON	All	BLD		44.88	49.37	1.5	1.5	2.0	10.25	15.30	0.00	0.85
TERRAZZO FINISHER	All	BLD		39.54	39.54	1.5	1.5	2.0	10.55	11.79	0.00	0.67
TERRAZZO MASON	All	BLD		43.38	43.38	1.5	1.5	2.0	10.55	13.13	0.00	0.79
TILE MASON	All	BLD		43.84	47.84	1.5	1.5	2.0	10.55	11.40	0.00	0.99
TRUCK DRIVER	All	All	1	37.91	38.46	1.5	1.5	2.0	8.10	7.97	0.00	0.15
TRUCK DRIVER	All	All	2	38.06	38.46	1.5	1.5	2.0	8.10	7.97	0.00	0.15
TRUCK DRIVER	All	All	3	38.26	38.46	1.5	1.5	2.0	8.10	7.97	0.00	0.15
TRUCK DRIVER	All	All	4	38.46	38.46	1.5	1.5	2.0	8.10	7.97	0.00	0.15
TUCKPOINTER	All	BLD		44.90	45.90	1.5	1.5	2.0	8.30	14.29	0.00	0.48

Explanations

KENDALL COUNTY

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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.

COMMUNICATIONS TECHNICIAN

Construction, installation, maintenance and removal of telecommunication facilities (voice, sound, data and video), telephone, security, and data inside wire, interconnect, terminal equipment, central offices, PABX 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; Welder.

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 ENGINEERS - FLOATING

Diver. Diver Wet Tender, Diver Tender, ROV Pilot, ROV Tender

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 yeards; 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".

This schedule contains the prevailing wage rates required to be paid for work performed on or after Monday, June 5, 2017 on public works projects in this County. Pursuant to 820 ILCS 130/4, public bodies in this County that have active public works projects are responsible for notifying all contractors and subcontractors working on those public works projects of the change (if any) to rates that were previously in effect. The failure of a public body to provide such notice does not relieve contractors or subcontractors of their obligations under the Prevailing Wage Act, including the duty to pay the relevant prevailing wage in effect at the time work subject to the Act is performed.

WILL COUNTY
PREVAILING WAGE
RATES EFFECTIVE JUNE
5, 2017

TradeTitle	Region	Type	Class	Base Wage	Foreman Wage	M-F OT	OSA	OSH	H/W	Pension	Vacation	Training
ASBESTOS ABT-GEN	All	All		40.40	40.95	1.5	1.5	2.0	14.23	11.57	0.00	0.50
ASBESTOS ABT-MEC	All	BLD		37.46	39.96	1.5	1.5	2.0	11.62	11.06	0.00	0.72
BOILERMAKER	All	BLD		47.07	51.30	2.0	2.0	2.0	6.97	18.13	0.00	0.40
BRICK MASON	All	BLD		44.88	49.37	1.5	1.5	2.0	10.25	15.30	0.00	0.85
CARPENTER	All	All		45.35	49.89	2.0	2.0	2.0	11.99	19.68	0.00	0.63
CEMENT MASON	All	ALL		42.00	44.00	2.0	1.5	2.0	10.00	21.73	0.00	0.50
CERAMIC TILE FNSHER	All	BLD		37.81	37.81	1.5	1.5	2.0	10.55	10.12	0.00	0.65
COMMUNICATION TECH	All	BLD		34.25	35.75	1.5	1.5	2.0	14.12	12.03	1.41	0.72
ELECTRIC PWR EQMT OP	All	All		48.90	53.90	1.5	1.5	2.0	11.41	16.39	0.00	3.10
ELECTRIC PWR GRNDMAN	All	All		38.14	53.90	1.5	1.5	2.0	8.90	12.78	0.00	2.75
ELECTRIC PWR LINEMAN	All	All		48.90	53.90	1.5	1.5	2.0	11.41	16.39	0.00	3.10
ELECTRICIAN	All	BLD		41.46	45.19	1.5	1.5	2.0	14.97	16.68	3.25	1.20
ELEVATOR CONSTRUCTOR	All	BLD		51.94	58.43	2.0	2.0	2.0	14.43	14.96	4.16	0.90
GLAZIER	All	BLD		41.70	43.20	1.5	2.0	2.0	13.94	18.99	0.00	0.94
HT/FROST INSULATOR	All	BLD		49.95	52.45	1.5	1.5	2.0	11.62	12.26	0.00	0.72
IRON WORKER	All	All		42.00	43.00	2.0	2.0	2.0	10.54	23.81	0.00	0.85

LABORER	All	All		40.20	40.95	1.5	1.5	2.0	14.23	11.57	0.00	0.50
LATHER	All	ALL		45.35	49.89	2.0	2.0	2.0	11.99	19.68	0.00	0.63
MACHINIST	All	BLD		45.35	47.85	1.5	1.5	2.0	7.26	8.95	1.85	0.00
MARBLE FINISHERS	All	All		33.45	36.80	1.5	1.5	2.0	10.25	14.44	0.00	0.46
MARBLE MASON	All	BLD		44.13	48.54	1.5	1.5	2.0	10.25	14.97	0.00	0.59
MATERIAL TESTER I	All	All		30.20	30.20	1.5	1.5	2.0	14.23	11.57	0.00	0.50
MATERIALS TESTER II	All	All		35.20	35.20	1.5	1.5	2.0	14.23	11.57	0.00	0.50
MILLWRIGHT	All	All		45.35	49.89	2.0	2.0	2.0	11.99	19.68	0.00	0.63
OPERATING ENGINEER	All	BLD	1	49.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	2	47.80	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	3	45.25	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	4	43.50	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	5	52.85	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	6	50.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	BLD	7	52.10	53.10	2.0	2.0	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	FLT	1	54.75	54.75	1.5	1.5	2.0	17.65	12.65	1.90	1.35
OPERATING ENGINEER	All	FLT	2	53.25	54.75	1.5	1.5	2.0	17.65	12.65	1.90	1.35
OPERATING ENGINEER	All	FLT	3	47.40	54.75	1.5	1.5	2.0	17.65	12.65	1.90	1.35
OPERATING ENGINEER	All	FLT	4	39.40	54.75	1.5	1.5	2.0	17.65	12.65	1.90	1.35
OPERATING ENGINEER	All	FLT	5	56.25	54.75	1.5	1.5	2.0	17.65	12.65	1.90	1.35
OPERATING ENGINEER	All	FLT	6	37.00	54.75	1.5	1.5	2.0	17.65	12.65	1.90	1.35
OPERATING ENGINEER	All	HWY	1	47.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	2	46.75	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	3	44.70	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	4	43.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	5	42.10	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	6	50.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
OPERATING ENGINEER	All	HWY	7	48.30	51.30	1.5	1.5	2.0	18.05	13.60	1.90	1.30
PAINTER	All	All		44.55	49.30	1.5	1.5	1.5	11.50	11.10	0.00	1.27
PAINTER SIGNS	All	BLD		33.92	38.09	1.5	1.5	1.5	2.60	2.71	0.00	0.00
PILEDRIVER	All	ALL		45.35	49.89	2.0	2.0	2.0	11.99	19.68	0.00	0.63

PIPEFITTER	All	BLD		47.50	50.50	1.5	1.5	2.0	9.55	17.85	0.00	2.07
PLASTERER	All	BLD		42.25	44.79	1.5	1.5	2.0	13.65	9.50	5.00	0.65
PLUMBER	All	BLD		48.25	50.25	1.5	1.5	2.0	14.09	12.65	0.00	1.18
ROOFER	All	BLD		41.70	44.70	1.5	1.5	2.0	8.28	11.59	0.00	0.53
SHEETMETAL WORKER	All	BLD		45.77	47.77	1.5	1.5	2.0	10.65	14.10	0.00	0.82
SPRINKLER FITTER	All	BLD		47.20	49.20	1.5	1.5	2.0	12.25	11.55	0.00	0.55
STONE MASON	All	BLD		44.88	49.37	1.5	1.5	2.0	10.25	15.30	0.00	0.85
TERRAZZO FINISHER	All	BLD		39.54	39.54	1.5	1.5	2.0	10.55	11.79	0.00	0.67
TERRAZZO MASON	All	BLD		43.38	43.38	1.5	1.5	2.0	10.55	13.13	0.00	0.79
TILE MASON	All	BLD		43.84	47.84	1.5	1.5	2.0	10.55	11.40	0.00	0.99
TRAFFIC SAFETY WRKR	All	HWY		33.50	35.10	1.5	1.5	2.0	8.25	5.50	0.00	0.25
TRUCK DRIVER	All	All	1	37.91	38.46	1.5	1.5	2.0	8.10	7.97	0.00	0.15
TRUCK DRIVER	All	All	2	38.06	38.46	1.5	1.5	2.0	8.10	7.97	0.00	0.15
TRUCK DRIVER	All	All	3	38.26	38.46	1.5	1.5	2.0	8.10	7.97	0.00	0.15
TRUCK DRIVER	All	All	4	38.46	38.46	1.5	1.5	2.0	8.10	7.97	0.00	0.15
TUCKPOINTER	All	BLD		44.90	45.90	1.5	1.5	2.0	8.30	14.29	0.00	0.48

Explanations

WILL 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.

COMMUNICATIONS TECHNICIAN

Installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice, sound and vision production

and reproduction, telephone and telephone interconnect, facsimile, equipment and appliances used for domestic, commercial, educational and entertainment purposes, pulling of wire through conduit but not the installation of conduit.

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

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 yeards; 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".

ACCESSIBLE PEDESTRIAN SIGNALS (APS) (BDE)

Effective: April 1, 2003
Revised: January 1, 2014

Description. This work shall consist of furnishing and installing accessible pedestrian signals (APS). Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

Electrical Requirements. The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -29 to +160 °F (-34 to +70 °C).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A pushbutton locator tone shall sound at each pushbutton.

If two accessible pedestrian pushbuttons are placed less than 10 ft (3 m) apart or placed on the same pole, the audible walk indication shall be a speech walk message.

A clear, verbal message shall be used to communicate the pedestrian walk interval. This message shall sound throughout the WALK interval only. The verbal message shall be modeled after: "'Street Name.' Walk Sign is on to cross "Street Name'." No other messages shall be used to denote the WALK interval.

Where two accessible pedestrian pushbuttons are separated by at least 10 ft (3 m), the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz.

Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound.

Pedestrian Pushbutton. Pedestrian pushbuttons shall be at least 2 in. (50 mm) in diameter or width. The force required to activate the pushbutton shall be no greater than 3.5 lb (15.5 N).

A red LED shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

Signage. A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall be one of the following standard MUTCD designs:

R10-3

R10-3a

R10-4

R10-4a

Tactile Arrow. A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided either on the pushbutton or its sign.

Vibrotactile Feature. The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Method of Measurement. This work will be measured for payment as each, per pushbutton.

Basis of Payment. This work will be paid for at the contract unit price per each for ACCESSIBLE PEDESTRIAN SIGNALS.

80099

MOISTURE CURED URETHANE PAINT SYSTEM (BDE)

Effective: November 1, 2006
Revised: January 1, 2010

Add the following to Section 1008 of the Standard Specifications:

"**1008.06 Moisture Cured Urethane Paint System.** The moisture cured urethane paint system shall consist of an aromatic moisture cured urethane primer, an aromatic moisture cured urethane intermediate coat, and aliphatic moisture cured urethane finish coats. It is intended for field painting blast-cleaned existing structures.

(a) General Requirements.

(1) Compatibility. Each coating in the system shall be supplied by the same paint manufacturer.

(2) Toxicity. Each coating shall contain less than 0.01 percent lead in the dry film and no more than trace amounts of hexavalent chromium, cadmium, mercury or other toxic heavy metals.

(3) Volatile Organics. The volatile organic compounds of each coating shall not exceed 2.8 lb/gal (340 g/L) as applied.

(b) Test Panel Preparation.

(1) Substrate and Surface Preparation. Test panels shall be ASTM A 36, hot-rolled steel measuring 4 x 6 in. (100 x 150 mm). Panels shall be blast-cleaned per SSPC–SP5 white metal condition using recyclable metallic abrasive according to SSPC AB-3. The abrasive shall be a 60/40 mix of shot and grit. The shot shall be an SAE shot number S230 and the grit an SAE number G40. Hardness of the shot and grit shall be Rockwell C45. The anchor profile shall be 1.5-2.5 mils (40-65 microns) measured according to ASTM D 4417, Method C.

(2) Application and Curing. All coatings shall be spray applied at the manufacturer's recommended film thickness. The coated panels shall be cured at least 30 days and not more than 45 days at 77 °F ± 2 °F (25 °C ± 2 °C) and 65 ± 5 percent relative humidity.

(3) Scribing. The test panels shall be scribed according to ASTM D 1654 with a single "X" mark centered on the panel. The rectangular dimensions of the scribe shall have a top width of 2 in. (50 mm) and a height of 4 in. (100 mm). The scribe cut shall expose the steel substrate as verified with a microscope.

(4) Number of Panels. All testing shall be performed on triplicate panels.

(c) Zinc-Rich Primer Requirements.

(1) Generic Type. This material shall be a single component zinc-rich aromatic moisture cured urethane primer. It shall be suitable for topcoating with urethanes.

(2) Zinc Dust. The zinc dust pigment shall be according to ASTM D 520, Type II.

(3) Slip Coefficient. The organic zinc coating shall meet a Class B AASHTO slip coefficient (0.50 or greater) for structural steel joints using ASTM A 325 (A 325M) or A 490 (A 490M) bolts.

(4) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 900 psi (6.2 MPa) when tested according to ASTM D 4541 Annex A4.

(d) Intermediate Coat Requirements.

(1) Generic Type. This material shall be a single component aromatic moisture cured urethane. It shall be suitable as an intermediate coat over the primer and compatible with the finish coat.

(2) Color. The color of the intermediate coat shall provide a distinct contrast between the primer and the finish coat.

(e) Urethane Finish Coat Requirements.

(1) Generic Type. This material shall be a single component aliphatic moisture cured urethane. It shall be suitable as a topcoat over the intermediate coat.

(2) Color and Hiding Power. The finish coat shall match Munsell Glossy Color 7.5G 4/8 Interstate Green, 2.5YR 3/4 Reddish Brown, 10B 3/6 Blue, or 5B 7/1 Gray. The color difference shall not exceed 3.0 Hunter Delta E Units. Color difference shall be measured by instrumental comparison of the designated Munsell standard to a minimum dry film thickness of 3 mils (75 microns) of sample coating produced on a test panel according to ASTM D 823, Practice E, Hand–Held, Blade Film Application. Color measurements shall be determined on a spectrophotometer with 45 degrees circumferential/zero degrees geometry, illuminant C, and two degrees observer angle. The spectrophotometer shall measure the visible spectrum from 380-720 nanometers with a wavelength interval and spectral bandpass of 10 nanometers.

The contrast ratio of the finish coat at 3 mils (75 microns) dry film thickness shall not be less than 0.99 when tested according to ASTM D 2805.

(3) Accelerated Weathering Resistance. Test panels shall be aluminum alloy measuring 12 x 4 in. (300 x 100 mm) prepared according to ASTM D 1730 Type A, Method 1 Solvent Cleaning. A minimum dry film thickness of 3 mils (75 microns) of finish coat shall be applied to three test panels according to ASTM D 823, Practice E, Hand Held Blade Film Application. The coated panels shall be cured at least 30 days and

not more than 45 days at 77 °F ± 2 °F (25 °C ± 2 °C) and 65 ± 5 percent relative humidity. The panels shall be subjected to 300 hours of accelerated weathering using the light and water exposure apparatus (fluorescent UV - condensation type) as specified in ASTM G 53-96 and ASTM G 154 (equipped with UVB-313 lamps). The cycle shall consist of eight hours UV exposure at 140 °F (60 °C) followed by four hours of condensation at 104 °F (40 °C). After exposure, the panel shall be rinsed with clean water and allowed to dry at room temperature for one hour. The exposed panels shall not show a color change of more than 3 Hunter Delta E Units.

(f) Three Coat System Requirements.

(1) Finish Coat Color. For testing purposes, the color of the finish coat shall match Federal Standard No 595, color chip 14062 (green).

(2) Salt Fog. When tested according to ASTM B 117 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,000 hours of salt fog exposure.

Salt Fog Acceptance Criteria (max.)		
Blister Conversion Value	Rust Criteria	
After 4000 Hours	Maximum Creep	Average Creep
10	6 mm	2 mm

(3) Cyclic Exposure. When tested according to ASTM D 5894 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,040 hours of cyclic exposure.

Cyclic Exposure Acceptance Criteria (max.)		
Blister Conversion Value	Rust Criteria	
	Maximum Creep	Average Creep
10	13 mm	7 mm

(4) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 900 psi (6.2 MPa) when tested according to ASTM D 4541 Annex A4.

(5) Freeze Thaw Stability. There shall be no reduction of adhesion, which exceeds the test precision, after 30 days of freeze/thaw/immersion testing. One 24 hour cycle shall consist of 16 hours of approximately -22 °F (-30 °C) followed by four hours of thawing at 122 °F (50 °C) and four hours tap water immersion at 77 °F (25 °C). The test panels shall remain in the freezer mode on weekends and holidays.

(g) Qualification Samples and Tests. The manufacturer shall supply, to an independent test laboratory and to the Department, samples of the moisture cured zinc-rich urethane primer, moisture cured urethane intermediate coat, and moisture cured aliphatic urethane finish coats for evaluation. Prior to approval and use, the manufacturer shall submit a notarized certification of the independent laboratory, together with results of all

tests, stating that these materials meet the requirements as set forth herein. The certified test report shall state lots tested, manufacturer's name, product names, and dates of manufacture. New certified test results and samples for testing by the Department shall be submitted any time the manufacturing process or paint formulation is changed. All costs of testing, other than tests conducted by the Department, shall be borne by the manufacturer.

(h) Acceptance Samples and Certification. A 1 qt (1 L) sample of each lot of paint produced for use on state or local agency projects shall be submitted to the Department for testing, together with a manufacturer's certification. The certification shall state that the formulation for the lot represented is essentially identical to that used for qualification testing. All acceptance samples shall be witnessed by a representative of the Illinois Department of Transportation. The moisture cured zinc-rich primer, moisture cured urethane intermediate coat, and moisture cured aliphatic urethane finish coat shall not be used until tests are completed and they have met the requirements as set forth herein."

80165

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010
Revised: November 1, 2014

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term "equipment" refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment's respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 [1/]	600-749	2002
	750 and up	2006
June 1, 2011 [2/]	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 [2/]	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (http://www.epa.gov/cleandiesel/verification/verif-list.htm), or verified by the California Air Resources Board (CARB) (http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm); or

b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit

device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

Diesel Retrofit Deficiency Deduction

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be $1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected.

Such a shutdown will not be grounds for any extension of the contract time, waiver of penalties, or be grounds for any claim.

80261

PROGRESS PAYMENTS (BDE)

Effective: November 2, 2013

Revise Article 109.07(a) of the Standard Specifications to read:

"(a) Progress Payments. At least once each month, the Engineer will make a written estimate of the quantity of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than $1000.00 will be approved for payment other than the final payment.

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

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

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

80328

UNDERPASS LUMINAIRE (BDE)

Effective: August 1, 2014
Revised: April 1, 2015

Revise the first paragraph of Article 821.06 of the Standard Specifications to read:

"**821.06 Underpass Installation.** When attached directly to a structure, the underpass luminaire shall have stainless steel brackets installed between the luminaire and the structure to create a gap of not less than 1 in. (25 mm)."

Revise the third sentence of the third paragraph of Article 821.06 of the Standard Specifications to read:

"All mounting hardware, including the vibration dampers, shall be stainless steel."

Revise Article 1067.04(a) of the Standard Specifications to read:

"(a) Housing. The housing and lens frame shall be made of heavy duty die cast aluminum or 16 gauge (1.5 mm) minimum thickness Type 304 stainless steel. All seams in the housing enclosure shall be welded by continuous welds.

The housing shall have an opening for installation of 3/4 in. (19 mm) diameter conduit."

Revise the third sentence of the first paragraph of Article 1067.04(b) of the Standard Specifications to read:

"The lens frame shall be hinged with a continuous stainless steel piano type hinge for stainless steel housings."

Delete Article 1067.04(c) of the Standard Specifications.

80345

SIDEWALK, CORNER, OR CROSSWALK CLOSURE (BDE)

Effective: January 1, 2015
Revised: April 1, 2015

Revise the first sentence of Article 1106.02(m) of the Supplemental Specifications to read:

> "The top and bottom panels shall have alternating white and orange stripes sloping 45 degrees on both sides."

80354

DUPAGE COUNTY DIVISION OF TRANSPORTATION

TRAFFIC SIGNAL SPECIAL PROVISIONS

EFFECTIVE APRIL 19, 2016

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DUPAGE COUNTY DIVISION OF TRANSPORTATION

TRAFFIC SIGNAL SPECIAL PROVISIONS

EFFECTIVE APRIL 19, 2016

The DuPage County Division of Transportation (DPCDOT) abides by the most recent provisions of the "Illinois Department of Transportation (IDOT) District One Traffic Signal Special Provisions" and the State of Illinois "Standard Specifications for Road and Bridge Construction". In addition to these documents the work performed on all DuPage County facilities shall be governed and comply with "The National Electrical Code", "The National Electrical Manufacturers Association", "The International Municipal Signal Association", "The Institute of Transportation Engineers", "AASHTO Standard Specifications", the federal "Manual on Uniform Traffic Control Devices", and the following County Special Provisions. In the event of conflict with any part or parts of said documents, these DuPage Special Provisions shall govern.

The phone number contact at the DuPage County Division of Transportation for all contract electrical questions or requests is **(630) 407-6900**, which includes requests for loop layout approval, transfer of maintenance, maintenance contractor locates, and equipment inspections and turn-ons.

LIQUIDATED DAMAGES FOR UNTIMELY WORK

A primary concern 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 the Contractor 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.

MAINTENANCE AND RESPONSIBILITY

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

Unless specifically stated to the contrary, all items shall be repaired within the time frame described in the Repair Timetable. The times listed are non-cumulative. 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.	30 days
Detector Loop (Priority)	1 hr	n.a.	10 days
Loop Detector/Amplifier	1 hr	4 hrs	2 wks
MVP Sensor	1 hr	4 hrs	2 wks
PTZ Camera	1 hr	48 hrs	2 wks
Detector Interface Card/Mini Hub	1 hr	4 hrs	2 wks
Modem	1 hr	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)	48hrs	48hrs	1 wk
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.	1 hr	2 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

MAST ARM SIGN PANELS
Effective: May 22, 2002
Revised: July 1, 2015
720.01TS

Add the following to Article 720.02 of the Standard Specifications:

Sign stiffening channel systems shall be aluminum and meet the requirements of ASTM 6261-T5. Sign mounting banding, buckles and buckle straps shall be manufactured from AISI 201 stainless steel.

SIGN SHOP DRAWING SUBMITTAL
Effective: January 22, 2013
Revised: July 1, 2015
720.02TS

Add the following paragraph to Article 720.03 of the Standard Specifications:

Shop drawings will be required, according to Article 105.04, for all Arterials/Expressways signs except standard highway signs covered in the MUTCD. Shop drawings shall be submitted to the Engineer for review and approval prior to fabrication. The shop drawings shall include dimensions, letter sizing, font type, colors and materials.

TRAFFIC SIGNAL GENERAL REQUIREMENTS
DuDOT Effective: April 19, 2016

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations.

- All material furnished shall be new unless otherwise noted herein.
- Traffic signal construction and maintenance work shall be performed by personnel holding current IMSA Traffic Signal Technician Level II certification. A copy of the certification shall be immediately available upon request of the Engineer.
- The work to be done under this contract consists of furnishing, installing and maintaining all traffic signal work and items as specified in the Plans and as specified herein in a manner acceptable and approved by the Engineer.

<u>Definitions of Terms.</u>
Add the following to Section 101 of the Standard Specifications:

101.56 Vendor. Company that sells a particular type of product directly to the contractor or the Equipment Supplier.

101.57 Equipment supplier. Company that supplies, represents and provides technical support for IDOT District One approved traffic signal controllers and other related equipment. The Equipment Supplier shall be located within IDOT District One and shall:

- Be full service with on-site facilities to assemble, test and trouble-shoot traffic signal controllers and cabinet assemblies.
- Maintain an inventory of IDOT District One approved controllers and cabinets.
- Be staffed with permanent sales and technical personnel able to provide traffic signal controller and cabinet expertise and support.
- Technical staff shall hold current IMSA Traffic Signal Technician Level III certification and shall attend traffic signal turn-ons and inspections with a minimum 14 calendar day notice.

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

All material approval requests shall be submitted electronically through the District's SharePoint System unless directed otherwise by the Engineer. Electronic material submittals shall follow the District's Traffic Operations Construction Submittals guidelines. General requirements include:

1. All material approval requests shall be made prior to or no later than the date of the preconstruction meeting. A list of major traffic signal items can be found in Article 801.05. Material or equipment which is similar or identical shall be the product of the same manufacturer, unless necessary for system continuity. Traffic signal materials and equipment shall bear the U.L. label whenever such labeling is available.
2. 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 Department with the review status, except shop drawings for mast arm pole assemblies and the like will be stamped with the review status on each sheet.
3. Original manufacturer published product data and shop drawing sheets with legible dimensions and details shall be submitted for review.
4. When hard copy submittals are necessary, four complete copies of the manufacturer's descriptive literatures and technical data for the traffic signal materials shall be submitted. For hard copy or electronic submittals, the descriptive literature and technical data shall be adequate for determining whether the materials meet the requirements of the plans and specifications. If the literature contains more than one item, the Contractor shall indicate which item or items will be furnished.
5. When hard copy submittals are necessary for structural elements, four 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 shall be submitted.
6. Partial or incomplete submittals will be returned without review.
7. Certain non-standard mast arm poles and special structural elements will require additional review from IDOT's Central Office. Examples include ornamental/decorative, non-standard length mast arm pole assemblies and monotube structures. The Contractor shall account for the additional review time in his schedule.
8. 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.

9. 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.
10. 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-Noted', 'Disapproved', or 'Incomplete'. 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 Department's approval thereof. The Contractor must still be in full compliance with contract and specification requirements.
11. The Contractor shall secure approved materials in a timely manner to assure construction schedules are not delayed.
12. All submitted items reviewed and marked 'APPROVAL', 'APPROVED AS NOTED', '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.
13. 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.
14. Contractor shall not order major equipment such as mast arm assemblies prior to Engineer approval of the Contractor marked proposed traffic signal equipment locations to assure proper placement of contract required traffic signal displays, push buttons and other facilities. Field adjustments may require changes in proposed mast arm length and other coordination.

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."

Add the following to Article 801.09 of the Standard Specifications:

It shall be the contractor's responsibility to verify all dimensions and conditions existing in the field prior to ordering materials and beginning construction. This shall include locating the mast arm foundations and verifying the mast arms lengths.

Inspection of Electrical Systems.

Add the following to Article 801.10 of the Standard Specifications:

(c) All cabinets including temporary traffic signal cabinets shall be assembled by an approved equipment supplier in District One. The Department reserves the right to request any controller and cabinet to be tested at the equipment supplier's facility prior to field installation, at no extra cost to this contract.

Maintenance and Responsibility.

Revise Article 801.11 of the Standard Specifications to read:

a. Existing traffic signal installations and/or any electrical facilities at all or various locations 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, Municipality or Transit Agency in which they are 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 item "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" 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 Electrical Maintenance Contractor with two 24-hour emergency contact names and telephone numbers.

b. Automatic Traffic Enforcement equipment such as red lighting running and railroad crossing camera systems are owned and operated by others and the Contractor shall not be responsible for maintaining this equipment.

c. Regional transit, County and other agencies may also have equipment connected to existing traffic signal or peripheral equipment such as PTZ cameras, switches, transit signal priority (TSP and BRT) servers and other devices that shall be included with traffic signal maintenance at no additional cost to the contract.

d. When the project has a pay item for "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," the Contractor must notify both the County's Traffic Engineer at (630) 407-6900 and the Department's Electrical Maintenance Contractor, of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. If work is started prior to an inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will 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 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.

e. 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 essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shut down the traffic signal installation will only be granted during the period

extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

f. The Contractor shall be fully responsible for the safe and efficient operation of the traffic signals and other equipment noted herein. Any inquiry, complaint or request by the County, the County's Electrical Maintenance Contractor or the public, shall be investigated and repairs begun within one hour. Failure to provide this service will result in liquidated damages of $1000 per day per occurrence. In addition, the County reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical Maintenance Contractor within one month after the incident will result in additional liquidated damages of $1000 per month per occurrence. Unpaid bills will be deducted from the cost of the Contract. The County may inspect any signalizing device on the County's highway system at any time without notification.

g. 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.

h. The Contractor shall be responsible to clear snow, ice, dirt, debris or other condition that obstructs visibility of any traffic signal display or access to traffic signal equipment.

i. The Contractor shall maintain the traffic signal in normal operation during short or long term loss of utility or battery back-up power at critical locations designated by the Engineer. Critical locations may include traffic signals interconnected to railroad warning devices, expressway ramps, intersection with an SRA route, critical corridors or other locations identified by the Engineer. Temporary power to the traffic signal must meet applicable NEC and OSHA guidelines and may include portable generators and/or replacement batteries. Temporary power to critical locations shall not be for separately but shall be included in the contract.

Damage to Traffic Signal System.

Add the following to Article 801.12(b) of the Standard Specifications to read:

Any traffic signal control equipment damaged or not operating properly from any cause shall be replaced with new equipment meeting current District One traffic signal specifications and provided by the Contractor at no additional cost to the Contract and/or owner of the traffic signal system, all as approved by the Engineer. Final 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 are only allowed at the bases pf post and mast arms.

Temporary replacement of damaged or knockdown of a mast arm pole assembly shall require construction of a full or partial span wire signal installation or other method approved by the Engineer to assure signal heads are located overhead and over traveled pavement. Temporary replacement of mast arm mount signals with post mount signals will not be permitted.

Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, and peripheral equipment, damaged or not operating properly from any cause, 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 the intent to have all electric work completed and equipment field tested by the Equipment Supplier prior to the Department's "turn-on" field inspection. If in the event the Engineer determines work is not complete and 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 maintenance of the traffic signals will not be accepted until all punch list work is corrected and re-inspected.

When the road is open to traffic, except as otherwise provided in Section 850 of the Standard Specifications, 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 DuPage County at (630) 407-6900 a minimum of seven (7) working days prior to the time of the requested inspection. The Department will not grant a field inspection until written or electronic notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Contractor must invite local fire department personnel to the turn-on when Emergency Vehicle Preemption (EVP) is included in the project. When the contract includes the item RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, OPTIMIZE TRAFFIC SIGNAL SYSTEM, or TEMPORARY TRAFFIC SIGNAL TIMINGS, the Contractor must notify the SCAT Consultant of the turn-on/detour implementation schedule, as well as stage changes and phase changes during construction.

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. The Contractor shall be responsible to provide a police officer to assist with traffic control at the time of testing.

The Contractor shall provide a representative from the control equipment vendor's office who is knowledgeable of the cabinet design and controller functions to attend the traffic signal inspection for both permanent and temporary traffic signal turn-ons.

Upon demonstration that the signals are operating and all work is completed in accordance with the Contract and to the satisfaction of the Engineer, the 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 assume the maintenance upon successful completion of this inspection.

The District requires the following Final Project Documentation from the Contractor at traffic signal turn-ons in electronic format in addition to hard copies where noted. A CD/DVD shall be submitted with separate folders corresponding to each numbered title below. The CD/DVD shall be labelled with date, project location, company and contract or permit number. Record Drawings, Inventory and Material Approvals shall be submitted prior to traffic signal turn-on for review by the Department as described here-in.

Final Project Documentation:

1. Record Drawings. Signal plans of record with field revisions marked in red ink. One hard copy set of 11”x17” record drawings shall also be provided.
2. Inventory. Inventory of new and existing traffic signal equipment including cabinet types and devices within cabinets in an Excel spread sheet format. One hard copy shall also be provided.
3. Pictures. Digital pictures of a minimum 12M pixels of each intersection approach showing all traffic signal displays and equipment. Pictures shall include controller cabinet equipment in enough detail to clearly identify manufacture and model of major equipment.
4. Field Testing. Written notification from the Contractor and the equipment vendor of satisfactory field testing with corresponding material performance measurements, such as for detector loops and fiber optic systems (see Article 801.13). One hard copy of all contract required performance measurement testing shall also be provided.
5. Materials Approval. The material approval letter. A hard copy shall also be provided.
6. Manuals. Operation and service manuals of the signal controller and associated control equipment. One hard copy shall also be provided.
7. Cabinet Wiring Diagram and Cable Logs. Five (5) hard copies 11” x 17" of the cabinet wiring diagrams shall be provided along with electronic pdf and dgn files of the cabinet wiring diagram. Five hard copies of the cable logs and electronic excel files shall be provided with cable #, number of conductors and spares, connected device/signal head and intersection location.
8. Controller Programming Settings. The traffic signal controller’s timings; backup timings; coordination splits, offsets, and cycles; TBC Time of Day, Week and Year Programs; Traffic Responsive Program, Detector Phase Assignment, Type and Detector Switching; and any other functions programmable from the keyboard. The controller manufacturer shall also supply a printed form, not to exceed 11” x 17” for recording that data noted above. The form shall include a location, date, manufacturer’s name, controller model and software version. The form shall be approved by the Engineer and a minimum of three (3) copies must be furnished at each turn-on. The manufacturer must provide all programming information used within the controller at the time of turn-on.
9. Warrantees and Guarantees. All manufacturer and contractor warrantees and guarantees required by Article 801.14.
10. GPS coordinate of traffic signal equipment as describe in the Record Drawings section herein.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal "turn on", completeness of the required documentation and successful operation during a minimum 72 hour "burn-in" period following activation of the traffic signal. If approved, traffic signal acceptance shall be verbal at the "turn on" inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until Departmental acceptance is granted.

All equipment and/or parts to keep the traffic signal installation operating shall be furnished by the Contractor. No spare traffic signal equipment is available from the Department.

All punch list work shall be completed within two (2) weeks after the final inspection. The Contractor shall notify the Electrical Maintenance Contractor to inspect all punch list work. Failure to meet these time constraints shall result in liquidated damage charges of $500 per month per incident.

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 shall be subject to removal and disposal at the Contractor's expense.

Record Drawings.

The requirements listed for Electrical Installation shall apply for Traffic Signal Installations in Article 801.16. Revise the 2nd paragraph of Article 801.16 of the Standard Specifications to read:

"When the work is complete, and seven days before the request for a final inspection, the reduced-size set of contract drawings, stamped "RECORD DRAWINGS", shall be submitted to the Engineer for review and approval and shall be stamped with the date and the signature of the Contractor's supervising Engineer or electrician. The record drawings shall be submitted in PDF format on CDROM as well as hardcopy for review and approval. If the contract consists of multiple intersections, each intersection shall be saved as an individual PDF file with TS# and location name in its file name.

In addition to the record drawings, copies of the final catalog cuts which have been Approved or Approved as Noted shall be submitted in PDF format along with the record drawings. The PDF files shall clearly indicate the pay item either by filename or PDF Table of Contents referencing the respective pay item number for multi-item PDF files. Specific part or model numbers of items which have been selected shall be clearly visible."

As part of the record drawings, the Contractor shall inventory all traffic signal equipment, new or existing, on the project and record information in an Excel spreadsheet. The inventory shall include equipment type, model numbers, software manufacturer and version and quantities.

Add the following to Article 801.16 of the Standard Specifications:

“In addition to the specified record drawings, the Contactor shall record GPS coordinates of the following traffic signal components being installed, modified or being affected in other ways by this contract:

- All Mast Arm Poles and Posts
- Traffic Signal Wood Poles
- Rail Road Bungalow
- UPS
- Handholes
- Conduit roadway crossings
- Controller Cabinets
- Communication Cabinets
- Electric Service Disconnect locations
- CCTV Camera installations
- Fiber Optic Splice Locations
- Conduit Crossings

Datum to be used shall be North American 1983.

Data shall be provided electronically and in print form. The electronic format shall be compatible with MS Excel. Latitude and Longitude shall be in decimal degrees with a minimum of 6 decimal places. Each coordinate shall have the following information:

- File shall be named: TSXXX-YY-MM-DD (i.e. TS22157_15-01-01)
- Each intersection shall have its own file
- Row 1 should have the location name (i.e. IL 31 @ Klausen)
- Row 2 is blank
- Row 3 is the headers for the columns
- Row 4 starts the data
- Column A (Date) – should be in the following format: MM/DD/YYYY
- Column B (Item) – as shown in the table below
- Column C (Description) – as shown in the table below
- Column D and E (GPS Data) – should be in decimal form, per the IDOT special provisions

Examples:

Date	Item	Description	Latitude	Longitude
01/01/2015	MP (Mast Arm Pole)	NEQ, NB, Dual, Combination Pole	41.580493	-87.793378
01/01/2015	HH (Handhole)	Heavy Duty, Fiber, Intersection, Double	41.558532	-87.792571
01/01/2015	ES (Electrical Service)	Ground mount, Pole mount	41.765532	-87.543571
01/01/2015	CC (Controller Cabinet)		41.602248	-87.794053
01/01/2015	RSC (Rigid Steel Crossing)	IL 31 east side crossing south leg to center HH at Klausen	41.611111	-87.790222
01/01/2015	PTZ (PTZ)	NEQ extension pole	41.593434	-87.769876
01/01/2015	POST (Post)		41.651848	-87.762053
01/01/2015	MCC (Master Controller Cabinet)		41.584593	-87.793378
01/01/2015	COMC (Communication Cabinet)		41.584600	-87.793432
01/01/2015	BBS (Battery Backup System)		41.558532	-87.792571
01/01/2015	CNCR (Conduit Crossing)	4-inch IL 31 n/o of Klausen	41.588888	-87.794440

Prior to the collection of data, the contractor shall provide a sample data collection of at least six data points of known locations to be reviewed and verified by the Engineer to be accurate within 1 foot. Upon verification, data collection can begin. Data collection can be made as construction progresses, or can be collected after all items are installed. If the data is unacceptable the contractor shall make corrections to the data collection equipment and or process and submit the data for review and approval as specified.

Accuracy. Data collected is to be mapping grade. A handheld mapping grade GPS device shall be used for the data collection. The receiver shall support differential correction and data shall have a minimum 1 foot accuracy after post processing.

GPS receivers integrated into cellular communication devices, recreational and automotive GPS devices are not acceptable.

The GPS shall be the product of an established major GPS manufacturer having been in the business for a minimum of 6 years."

Delete the last sentence of the 3rd paragraph of Article 801.16.

Locating Underground Facilities.
Revise Section 803 to the Standard Specifications to read:

The County and IDOT traffic signal facilities are not part of any of the one-call locating service such as J.U.L.I.E or Digger. If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical

facilities from the District One Electrical Maintenance Contractor prior to the start of any work. Additional requests may be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

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, locally owned equipment, and leased enforcement camera system facilities, the local Counties or Municipalities may need to be contacted: in the City of Chicago contact Digger at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

Restoration of Work Area.
Add the following article to Section 801 of the Standard Specifications:

801.17 Restoration of work area. Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, underground raceways, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. All brick pavers disturbed in the work area shall be restored to their original configuration as directed by the Engineer. All damaged brick pavers shall be replaced with a comparable material approved by the Engineer. Restoration of the work area shall be included in the contract without any extra compensation allowed to the Contractor.

Bagging Signal Heads.

Shall be done per Section 880, article 880.03 or per direction of Engineer.

OPTIMIZE TRAFFIC SIGNAL SYSTEM
Effective: May 22, 2002
Revised: April 19, 2016
800.02TS

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 CountyTraffic Engineer at (630) 407-6900 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 noted herein.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank a CD, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. 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.

2. 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 and on a Saturday or Sunday, as directed by the Engineer, to account for special traffic generators such as shopping centers, educational institutes and special event facilities. The turning movement counts shall identify cars, and single-unit and multi-unit heavy vehicles.

3. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.

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 IDOT 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. The consultant shall respond to IDOT comments and public complaints for a minimum period of 90 days from date of timing plan implementation.

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

RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM
Effective: May 22, 2002
Revised: July 1, 2015
800.03TS

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 DuPage County DOT at (630) 407-6900 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.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer discs, copies of computer simulation files for the existing optimized system and a timing database will be made for the Consultant. 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 modified intersection(s) shall be forwarded to IDOT 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. The consultant shall respond to IDOT comments and public complaints for a minimum period of 60 days from date of timing plan implementation.

2. The following deliverables shall be provided for LEVEL I Re-Optimization.
   a. Consultant shall furnish to IDOT a cover letter describing the extent of the re-optimization work performed.
   b. Consultant shall furnish an updated intersection graphic display for the subject intersection to IDOT and to IDOT's Traffic Signal Maintenance Contractor.

(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(s) 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 and on a Saturday and/or Sunday, as directed by the Engineer, to account for special traffic generators such as shopping centers, educational institutes and special event facilities. The turning movement counts shall identify cars, and single-unit, multi-unit heavy vehicles, and transit buses.
   b. As necessary, the intersection(s) shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.

c. 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.

2. The following deliverables shall be provided for LEVEL II Re-Optimization.
   a. Consultant shall furnish to IDOT 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 IDOT 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
      (3) Traffic counts conducted at the subject intersection(s)
      (4) New or updated intersection(s) graphic display file for the subject intersection(s)
      (5) The CD shall be labeled with the IDOT system number and master location, as well as the submittal date and the consultant logo. 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.

SERVICE INSTALLATION (TRAFFIC SIGNALS)
Effective: May 22, 2002
Revised: January 27, 2016
805.01TS

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 "District One Standard Traffic Signal Design Details".

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 and Area Traffic Signal Maintenance and Operations Engineer. The service agreement and sketch shall be submitted for signature to the IDOT's Traffic Operations Programs Engineer.

Materials.

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

b. Enclosures.
   1. Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 0.080-inch (2.03 mm) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. 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. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 14-inches (350 mm) high, 9-inches (225 mm) wide and 8-inches (200 mm) in depth is required. The cabinet shall be channel mounted to a wooden utility pole using assemblies recommended by the vendor.

   2. Ground Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 0.125-inch (3.175 mm) thick, the top 0.250-inch (6.350 mm) thick and the bottom

0.500-inch (12.70 mm) thick. Seams shall be continuous welded and ground smooth. 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 (1.91 mm) thick hinge bolted to the cabinet with stainless steel carriage bolts and nylocks nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 40-inches (1000 mm) high, 16-inches (400 mm) wide and 15-inches (375 mm) in depth 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.

3. All enclosures shall include a green external power indicator LED light with circuitry as shown in the Electrical Service-Panel Diagram detail sheet. For pole mounted service enclosures, the power indicator light shall be mounted as shown in the detail. For ground mounted enclosures, the power indicator light shall be mounted on the side of the enclosure most visible from the major roadway.

c. Electric Utility Meter Housing and Riser. The electric meter housing and meter socket shall be supplied and installed by the contractor. Electric utility required risers, weather/service head and any other materials necessary for connection shall also be included in the pay item. Materials shall be in accordance with the electric utility's requirements. For ground-mounted service, the electric utility meter housing shall be mounted to the enclosure. The meter shall be supplied by the utility company. Metered service shall not be used unless specified in the plans.

d. 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.

e. Circuit Breakers. Circuit breakers shall be standard UL listed molded case, thermal-magnetic bolt-on type circuit breakers 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.

f. 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.

g. 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.

h. 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 marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by the Utility Company.

i. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10 feet (3.0m) in length, and 3/4 inch (20mm) 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.

Basis of Payment.

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 CONCRETE FOUNDATION, TYPE A, which includes the ground rod, shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 3/4 inch (20mm) grounding conduit, ground rod, and pole mount assembly. Any charges 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

Effective: May 22, 2002
Revised: July 1, 2015
806.01TS

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. This work shall be in accordance with IDOT's District One Traffic Signal Design Details.

The grounding electrode system shall include a ground rod installed with each traffic signal controller concrete foundation and all mast arm and post concrete foundations. An additional ground rod will be required at locations were measured resistance exceeds 25 ohms. Ground rods are included in the applicable concrete foundation or service installation pay item and will not be paid for separately.

Testing shall be according to Article 801.13 (a) (4) and (5).

(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 801.04 of the Standard Specifications.

1. Equipment grounding conductors shall be bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.

2. Equipment grounding conductor*s* 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, conduits, and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. Bonding shall be made with a splice and pigtail connection, using a sized compression type copper sleeve, sealant tape, and heat-shrinkable cap. A UL listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points. Conduit grounding bushings shall be installed at all conduit terminations including spare or empty conduits.

3. All metallic and non-metallic raceways shall have a continuous equipment grounding conductor, except 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.

4. Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.

(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, and UL listed clamps.

COILABLE NON-METALLIC CONDUIT
Effective: May 22, 2002
Revised: July 1, 2015
810.01TS

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

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 for loop detection shall be included in the contract and not paid for separately.

UNDERGROUND RACEWAYS
Effective: May 22, 2002
Revised: July 1, 2015
810.02TS

Revise Article 810.04 of the Standard Specifications to read:

> "Installation. All underground conduits shall have a minimum depth of 30-inches (700 mm) below the finished grade."

Add the following to Article 810.04 of the Standard Specifications:

> "All metal conduit installed underground shall be Rigid Steel Conduit unless otherwise indicated on the plans."

Add the following to Article 810.04 of the Standard Specifications:

> "All raceways which extend outside of a structure or duct bank but are not terminated in a cabinet, junction box, pull box, handhole, post, pole, or pedestal shall extend a minimum or 300 mm (12") or the length shown on the plans

beyond the structure or duct bank. The end of this extension shall be capped and sealed with a cap designed for the conduit to be capped.

The ends of rigid metal conduit to be capped shall be threaded, the threads protected with full galvanizing, and capped with a threaded galvanized steel cap.

The ends of rigid nonmetallic conduit and coilable nonmetallic conduit shall be capped with a rigid PVC cap of not less than 3 mm (0.125") thick. The cap shall be sealed to the conduit using a room-temperature-vulcanizing (RTV) sealant compatible with the material of both the cap and the conduit. A washer or similar metal ring shall be glued to the inside center of the cap with epoxy, and the pull cord shall be tied to this ring."

ROD AND CLEAN EXISTING CONDUIT
Effective: January 1, 2015
Revised: July 1, 2015
810.03TS

Description.
This work shall consist of inserting a duct rod or electrical fish rod or tape of sufficient length and rigidity into an electrical conduit opening in one electrical handhole, and pushing the said rod through the conduit to emerge at the next or subsequent handhole in the conduit system at the location(s) shown on the plans. The duct rod may be inserted and removed by any standard construction method which causes no damage to the conduit. The size of the conduit may vary, but there shall be no differentiation in cost for the size of the conduit.

The conduit which is to be rodded and cleaned may exist with various amounts of standing water in the handholes to drain the conduit and to afford compatible working conditions for the installation of the duct rods and/or cables. Pumping of handholes shall be included with the work of rodding and cleaning of the conduit.

Any handhole which, in the opinion of the Engineer contains excessive debris, dirt or other materials to the extent that conduit rodding and cleaning is not feasible, shall be cleaned at the Engineer's order and payment approval as a separate pay item.

Prior to removal of the duct rod, a duct cleaning attachment such as a properly sized wire brush or cleaning mandrel shall be attached to the duct rod, which by removal of the duct rod shall be pulled through the conduit to remove sand, grit, or other light obstructions from the duct to provide a clean, clear passage for the installation of cable. Whenever the installation of cables is not performed as an adjunct to or immediately following the cleaning of the duct, a light weight pulling line such as a 1/8" polyethylene line or conduit measuring tape shall be placed and shall remain in the conduit to facilitate future work. When great difficulty of either inserting the duct rod or removal of the cleaning mandrel is encountered, the duct may require further cleaning by use of a compressed air gun, or a low pressure water hose. In the case of a broken conduit, the conduit must be excavated and repaired. The existence and location of breaks in the conduit may be determined by rodding, but the excavation and repair work required will be paid for separately.

This work shall be measured per lineal foot for each conduit cleaned. Measurements shall be made from point to point horizontally. No vertical rises shall count in the measurement.

Basis of Payment.
This work shall be paid for at the contract unit price per lineal foot for ROD AND CLEAN EXISTING CONDUIT for the installation of new electric cables in existing conduits. Such price shall include the furnishing of all necessary tools, equipment, and materials required to prepare a conduit for the installation of cable.

HANDHOLES
DuDOT Effective: April 19, 2016

Description.
Revise article 1088.05 (d) “Composite Concrete Handhole Load Capacity” to read “ Handholes and Covers shall meet the structural requirements of Section 7 of ANSI/SCTE 77 for Tier 15 loading.”

All conduits shall enter the handhole at a depth of 30 inches (762 mm) except for the conduits for detector loops when the handhole is less than 5 feet (1.52 m) from the detector loop. All conduit ends should be sealed with a waterproof sealant to prevent the entrance of contaminants into the handhole.

Galvanized steel cable hooks are required (single handhole-4 hooks, double handhole-6 hooks). Hooks shall be placed a minimum of 12 inches (305 mm) below the lid or lower if additional space is required.

GROUNDING CABLE
Effective: May 22, 2002
Revised: July 1, 2015
817.01TS

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

Add the following to Article 817.02 (b) of the Standard Specifications:

Unless otherwise noted on the Plans, traffic signal grounding conductor shall be one conductor, #6 gauge copper, with a green color coded XLP jacket.

The traffic signal grounding conductor shall be bonded, using a UL Listed grounding connector to all proposed and existing traffic signal mast arm poles and traffic/pedestrian signal posts, including push button posts. The grounding conductor shall be bonded to all proposed 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. The grounding conductor shall be bonded to conduit terminations using rated grounding bushings.

Add the following to Article 817.05 of the Standard Specifications:

Basis of Payment.
Grounding cable shall be measured in place for payment in foot (meter). Payment shall be at the contract unit price 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, grounding connectors, conduit grounding bushings, and other hardware.

FIBER OPTIC TRACER CABLE
Effective: May 22, 2002
Revised: July 1, 2015
817.02TS

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

Add the following to Article 817.03 of the Standard Specifications:

In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable in locations shown on the plans. The tracer cable shall be continuous, extended into the controller cabinet and terminated on a barrier type terminal strip mounted on the side wall of the controller cabinet. The barrier type terminal strip and tracer cable shall be clearly marked and identified. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable will be allowed to be spliced at handholes only. The tracer cable splice shall use a Western Union Splice soldered with resin core flux and shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. All exposed surfaces of the solder shall be smooth. The splice shall be covered with a black shrink tube meeting UL 224 guidelines, Type V and rated 600V, minimum length 4 inches (100 mm) and with a minimum 1 inch (25 mm) coverage over the XLP insulation, underwater grade.

Add the following to Article 817.05 of the Standard Specifications:

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

MAINTENANCE OF EXISTING TRAFFIC SIGNAL AND FLASHING BEACON INSTALLATION
DuDOT Effective: April 19, 2016

General.

1. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the Contract or any portion thereof. If Contract work is started prior to a traffic signal inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection.

2. The Contractor shall have electricians with IMSA Level II certification on staff to provide signal maintenance. A copy of the certification shall be immediately available upon request of the Engineer.

3. This item shall include maintenance of all traffic signal equipment and other connected and related equipment such as flashing beacons, emergency vehicle pre-emption equipment, master controllers, uninterruptable power supply (UPS and batteries), PTZ

cameras, vehicle detection, handholes, lighted signs, telephone service installations, communication cables, conduits to adjacent intersections, and other traffic signal equipment.

4. Regional transit, County and other agencies may also have equipment connected to existing traffic signal or peripheral equipment such as PTZ cameras, switches, transit signal priority (TSP and BRT) servers, radios and other devices that shall be included with traffic signal maintenance at no additional cost to the contract.

5. Maintenance shall not include Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, or peripheral equipment. This equipment is operated and maintained by the local municipality and should be de-activated while on contractor maintenance.

6. The energy charges for the operation of the traffic signal installation shall be paid for by the Contractor.

Maintenance.

1. 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. The Contractor shall check signal system communications and phone lines to assure proper operation. This item includes, as routine maintenance, all portions of emergency vehicle pre-emption equipment. The Contractor shall maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs. Prior to the traffic signal maintenance transfer, the contractor shall supply a detailed maintenance schedule that includes dates, locations, names of electricians providing the required checks and inspections along with any other information requested by the Engineer.

2. The Contractor is advised that the existing and/or span wire traffic signal installation must remain in operation during all construction stages, except for the most essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shut down the traffic signal installation will only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather or holiday periods.

3. The Contractor shall provide immediate corrective action when any part or parts of the system fail to function properly. Two 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 or otherwise removed from normal operation, 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 stop signs (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. When the signals operate in flash, the Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations 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 stop signs which may be damaged or stolen.

4. The Contractor shall provide the Engineer with 2 (two) 24 hour telephone numbers for the maintenance of the traffic signal installation and for emergency calls by the Engineer.

5. 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 the Standard Specifications and these special provisions.

6. The Contractor shall respond to all emergency calls from the County or others within one (1) 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 contract. 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 Electrical Maintenance Contractor perform the maintenance work. The Contractor shall be responsible for all of the State's Electrical Maintenance Contractor's costs and liquidated damages of $1000 per day per occurrence. The County's Electrical 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 Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

7. 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.

8. Equipment included in this item that is damaged or not operating properly from any cause shall be replaced with new equipment meeting current District One traffic signal specifications and provided by the Contractor at no additional cost to the Contract and/or owner of the traffic signal system, all as approved by the Engineer. Final 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.

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

10. The Contractor shall be responsible to clear snow, ice, dirt, debris or other condition that obstructs visibility of any traffic signal display or access to traffic signal equipment.

11. The Contractor shall maintain the traffic signal in normal operation during short or long term loss of utility or battery back-up power at critical locations designated by the Engineer. Critical locations may include traffic signals interconnected to railroad warning devices, expressway ramps, intersection with an SRA route, critical corridors or other locations identified by the Engineer. Temporary power to the traffic signal must meet applicable NEC and OSHA guidelines and may include portable generators and/or replacement batteries. Temporary power to critical locations shall not be paid for separately but shall be included in the contract.

12. Temporary replacement of damaged or knockdown of a mast arm pole assembly shall require construction of a full or partial span wire signal installation or other method approved by the Engineer to assure signal heads are located overhead and over traveled pavement. Temporary replacement of mast arm mount signals with post mount signals will not be permitted.

Basis of Payment.

This work will be paid for at the contract unit price per each for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION. Each intersection will be paid for separately. Maintenance of a standalone and or not connected flashing beacon shall be paid for at the contract unit price for MAINTENANCE OF EXISITNG FLASHING BEACON INSTALLATION. Each flashing beacon will be paid for separately.

TRAFFIC SIGNAL PAINTING
Effective: May 22, 2002
Revised: July 1, 2015
851.01TS

Description.
This work shall include surface preparation, powder coated finish application and packaging of new galvanized steel traffic signal mast arm poles and posts assemblies. All work associated with applying the painted finish shall be performed at the vendor's facility for the pole assembly or post or at a painting facility approved by the Engineer. Traffic signal mast arm shrouds and post bases shall also be painted the same color as the pole assemblies and posts.

Surface Preparation.
All weld flux and other contaminates shall be mechanically removed. The traffic mast arms and post assemblies shall be degreased, cleaned, and air dried to assure all moisture is removed.

Painted Finish.
All galvanized exterior surfaces shall be coated with a urethane or triglycidyl isocyanurate (TGIC) polyester powder to a dry film thickness of 2.0 mils. Prior to application, the surface shall be mechanically etched by brush blasting (Ref. SSPC-SP7) and the zinc coated substrate preheated to 450 ºF for a minimum one (1) hour. The coating shall be electrostatically applied and cured by elevating the zinc-coated substrate temperature to a minimum of 400 ºF.

The finish paint color shall be one of the vendor's standard colors and shall be as selected by the local agency responsible for paint costs. The Contractor shall confirm, in writing, the color selection with the local responsible agency and provide a copy of the approval to the Engineer and a copy of the approval shall be included in the material catalog submittal.

Painting of traffic signal heads, pedestrian signal heads and controller cabinets is not included in this pay item.

Any damage to the finish after leaving the vendor's facility shall be repaired to the satisfaction of the Engineer using a method recommended by the vendor and approved by the Engineer. If while at the vendor's facility the finish is damaged, the finish shall be re-applied at no cost to the contract.

Warranty.
The Contractor shall furnish in writing to the Engineer, the paint vendor's standard warranty and certification that the paint system has been properly applied.

Packaging.
Prior to shipping, the poles and posts shall be wrapped in ultraviolet-inhibiting plastic foam or rubberized foam.

Basis of Payment.
This work shall be paid for at the contract unit price each for PAINT NEW MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, PAINT NEW COMBINATION MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW COMBINATION MAST ARM AND POLE, 40 FEET (12.19

METER) AND OVER, or PAINT NEW TRAFFIC SIGNAL POST of the length specified, which shall be payment in full for painting and packaging the traffic signal mast arm poles and posts described above including all shrouds, bases and appurtenances.

TRAFFIC-ACTUATED CONTROLLER
Effective April 19, 2016

Add the following to Section 857 of the “Standard Specifications”:

Controllers incorporated into a DuPage signal system shall be the latest model available that is compatible with software currently in use by the County.

FULL-ACTUATED CONTROLLER (SPECIAL)
Effective: September 26, 1995
Revised: July 1, 2015
857.01TS

Description.
This work shall consist of furnishing and installing an "Econolite" brand traffic actuated solid state digital controller meeting the requirements of the current District One Traffic Signal Special Provisions 857.02TS Full Actuated Controller and Cabinet, and 857.02TS Railroad, Full Actuated Controller and Cabinet. This pay item shall include furnishing and installing the controller complete including malfunction management unit, load switches and flasher relays, and all necessary connections for proper operation.

Materials.
Add the following to Article 857.02 of the Standard Specifications:

Controllers shall be NTCIP compliant, Econolite ASC/3S-1000 unless specified otherwise on the plans or elsewhere on these specifications. A NTCIP compliant controller may be used at a traffic signal interconnected to railroad warning devices but only upon the approval of the Engineer. Only controllers supplied by one of the District One approved closed loop equipment supplier will be allowed. The controller shall be the most recent model and software version supplied by the equipment supplier at the time of the traffic signal TURN-ON and include data key. The traffic signal controller shall provide features to inhibit simultaneous display of a circular yellow ball and a yellow arrow display. Individual load switches shall be provided for each vehicle, pedestrian, and right turn over lap phase. The controller shall prevent phases from being omitted during program changes and after all preemption events.

Basis of Payment.
This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER (SPECIAL).

FULL-ACTUATED CONTROLLER AND CABINET
DuDOT Effective: April 19, 2016

Description.

This work shall consist of furnishing and installing a traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of Section 857 of the Standard Specifications, as modified herein, including malfunction management unit, load switches and flasher relays, with all necessary connections for proper operation.

If the intersection is part of an existing system and/or when specified in the plans, this work shall consist of furnishing and installing an "Econolite" brand traffic actuated solid state controller.

Materials.
Add the following to Article 857.02 of the Standard Specifications:

For installation as a stand-alone traffic signal, connected to a closed loop system or integrated into an advance traffic management system (ATMS), controllers shall be Econolite ASC/3S-1000 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved closed loop equipment suppliers will be allowed. Unless specified otherwise on the plans or these specifications, the controller shall be of the most recent model and software version supplied by the equipment supplier at the time of the traffic signal TURN-ON. A removable controller data key shall also be provided. Individual load switches shall be provided for each vehicle, pedestrian, and right turn over lap phase. The controller shall prevent phases from being skipped during program changes and after all preemption events and shall inhibit simultaneous display of circular yellow and yellow arrow indications.

For integration into an ATMS such as Centracs, Tactics, or TransSuite, the controller shall have the latest version of NTCIP software installed. For operation prior to integration into an ATMS, the controller shall maintain existing close loop management communications.

Add the following to Article 1074.03 of the Standard Specifications:

(a) (6) 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.

(b) (1) Revise “conflict monitor” to read “Malfunction Management Unit (MMU).” The MMU shall be a RENO A&E or approved equal 16 Channel, LCD display, IP addressable (Ethernet) Malfunction Management.

(b) (5) Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.—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.

(b) (6) Controller Harness – Provide a TS2 Type 2 “A” wired harness in addition to the TS2 Type 1 harness.

(b) (7) Surge Protection – Provide a pluggable module (50kA rating) with LED status indicators.

(b) (8) BIU – shall be secured by mechanical means.

(b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.

(b) (10) Switch Guards – All switches shall be guarded.

(b) (11) Heating – One (1) 200-watt, thermostatically-controlled electric heater, with two switched light receptacles thermostatically controlled.

(b) (12) Lighting –One (1) LED Panel shall be placed inside the cabinet top panel and one (1) LED Panel shall be placed on each side of the pull-out drawer/shelf assembly located beneath the controller support shelf. The LED Panels shall be controlled by a door switch. The LED Panels shall be provided from an approved vendor.

(b) (13) The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1 ½ inch (38mm) 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. (23 kg) 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 18 inches (610mm) wide.

(b) (14) Plan & Wiring Diagrams – 12” x 15” (305mm x 406mm) moisture sealed container attached to door.

(b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation. Configuration #1, Half-size rack, to be used when few, if any, detector loops are required. Fully wired to support one BIU, eight channels of vehicle detection, and four channels of Emergency Vehicle Preemption (EVP).
Configuration #2, Full-size rack, to be used when the required detector loops cannot be accommodated by the half-size rack. Fully wired to support one BIU, sixteen channels of vehicle detection, and four channels of EVP.

(b) (16) Field Wiring Labels – All field wiring shall be labeled.

(b) (17) Field Wiring Termination – Approved channel lugs required.

(b) (18) Power Panel and Power Supply – Provide a nonconductive shield.

(b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.

(b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.

(b) (21) Photo Cell for illuminated street name signs-mount photo cell above front door of cabinet.

(b) (22) Power distribution panel and circuit breaker for Illuminated Street Name signs shall be mounted near cabinet power supply.

(b) (23) Roadway combination lighting distribution panel and 30 amp circuit breaker shall be mounted near cabinet power supply.

Basis of Payment.

This work will be paid for at the contract unit price each for FULL-ACTUATED CONTROLLER AND TYPE IV CABINET; FULL-ACTUATED CONTROLLER AND TYPE V CABINET;; FULL-

ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL; FULL-ACTUATED CONTROLLER AND TYPE V CABINET, SPECIAL.

RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET
Effective: January 1, 2002
Revised: April 19, 2016
857.03TS

Description.
This work shall consist of furnishing and installing a traffic actuated solid state digital controller in the controller cabinet of the type specified, meeting the requirements of Section 857 of the Standard Specifications as modified herein and including conflict monitor, load switches and flasher relays, with monitoring and/or providing redundancy to the railroad preemptor and all necessary connections for proper operation.

If the intersection is part of an existing system and/or when specified in the plans, this work shall consist of furnishing and installing an "Econolite" brand traffic actuated solid state controller.

Controller and cabinet shall be assembled only by an approved IDOT District One traffic signal equipment supplier. The equipment shall be tested and approved in the equipment supplier's District One's facility prior to field installation.

Materials.
Add the following to Article 857.02 of the Standard Specifications:

For installation as a stand-alone traffic signal, connected to a closed loop system or integrated into an advance traffic management system (ATMS), controllers shall be Econolite ASC/3S-1000 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved closed loop equipment supplier will be allowed. The controller shall be the most recent model and software version approved by IDOT for use with railroad intersections supplied by the equipment supplier at the time of the traffic signal TURN-ON unless specified otherwise on plans or this specification, and include a removable data key. Individual load switches shall be provided for each vehicle, pedestrian, and right turn over lap phase. The controller shall prevent phases from being omitted during program changes and after all preemption events and shall inhibit simultaneous display of circular yellow and yellow arrow indications.

For integration into an ATMS such as Centracs, Tactics, or TransSuite, the controller shall have the latest version of NTCIP software installed. For operation prior to integration into an ATMS, the controller shall maintain existing communications.

Controller shall comply with Article 1073.01 as amended herein.

Controller Cabinet and Peripheral Equipment shall comply with Article 1074.03 as amended in these Traffic Signal Special Provisions.

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 or NEMA TS2 Type 2 design.

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 District One facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

Add the following to Article 1074.03 of the Standard Specifications:

(a) (6) Cabinets shall be designed for NEMA TS2 Type 1 or NEMA TS2 Type 2 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.

(b) (1) Revise “conflict monitor” to read “Malfunction Management Unit (MMU)”. The MMU shall be a RENO A&E or approved equal 16 Channel, LCD display, IP addressable (Ethernet) Malfunction Management.

(b) (5) Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel. 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.

(b) (6) Controller Harness – Provide a TS2 Type 2 “A” wired harness in addition to the TS2 Type 1 harness.

(b) (7) Surge Protection –Atlantic Scientific ZoneIT Model 91391 base station, Model 91375 ZoneIT pluggable module (50kA rating) with LED status indicators, or approved equivalent.

(b) (8) BIU – shall be secured by mechanical means.

(b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.

(b) (10) Switch Guards – All switches shall be guarded.

(b) (11) Heating – One (1) 200 watt, thermostatically-controlled, electric heater.

(b) (12) Lighting – One (1) LED Panel shall be placed inside the cabinet top panel and one (1) LED Panel shall be placed on each side of the pull-out drawer/shelf assembly located beneath the controller support shelf. The LED Panels shall be controlled by a door switch. The LED Panels shall be provided from an approved vendor.

(b) (13) The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1 ½ inch (38mm) 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. (23 kg) 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 18 inches (610mm) wide.

(b) (14) Plan & Wiring Diagrams – 12" x 15" (3.05mm x 4.06mm) moisture sealed container attached to door.

(b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation. Configuration #1, Half-size rack, to be used when few, if any, detector loops are required. Fully wired to support one BIU, eight channels of vehicle detection, and four channels of Emergency Vehicle Preemption (EVP).
Configuration #2, Full-size rack, to be used when the required detector loops cannot be accommodated by the half-size rack. Fully wired to support one BIU, sixteen channels of vehicle detection, and four channels of EVP.

(b) (16) Field Wiring Labels – All field wiring shall be labeled.

(b) (17) Field Wiring Termination – Approved channel lugs required.

(b) (18) Power Panel and Power Supply – Provide a nonconductive shield.

(b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.

(b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.

(b) (21) Photo Cell for illuminated street name signs-mount photo cell above front door of cabinet.

(b) (22) Power distribution panel and circuit breaker for Illuminated Street Name signs shall be mounted near cabinet power supply.

(b) (23) Roadway combination lighting distribution panel and 30 amp circuit breaker shall be mounted near cabinet power supply.

(b) (24) Railroad Pre-Emption Test Switch – Shall be provided from an approved vendor.

Installation.

Add the following to Article 857.03 of the Standard Specifications:

The Contractor shall arrange to install a standard voice-grade dial-up telephone line and all equipment to dial into the controller and have the controller dial out to the RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET as called for on the traffic signal installation plans. If the traffic signal installation is part of a traffic signal system, a telephone line is usually not required, unless a telephone line is called for on the traffic signal plans. The Contractor shall follow the requirements for the telephone service installation as contained in the current District One Traffic Signal Special Provision for Master Controller.

Basis of Payment.

This work will be paid for at the contract unit price each for RAILROAD, FULL-ACTUATED CONTROLLER AND TYPE IV CABINET; RAILROAD, FULL-ACTUATED CONTROLLER AND TYPE V CABINET; RAILROAD, FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL; RAILROAD, FULL-ACTUATED CONTROLLER AND TYPE V CABINET, SPECIAL; RAILROAD.

MASTER CONTROLLER

Effective: May 22, 2002

Revised: April 19, 2016
860.01TS

General.
This work shall consist of furnishing and installing a master controller, meeting the requirements of the current District One Traffic Signal Special Provisions 857.01TS FULL-ACTUATED CONTROLLER (SPECIAL), 857.02TS FULL-ACTUATED CONTROLLER AND CABINET, and 857.02TS RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET, including all necessary connections for proper operation.

If the intersection is part of an existing system and/or when specified in the plans, this work shall consist of furnishing and installing a(n) "Econolite" brand master controller.

Materials and Installation.
Revise Articles 860.02 and 860.03 of the Standard Specifications to read:

Only controllers supplied by one of the District approved closed loop equipment supplier will be allowed. Only NEMA TS 2 Type 1 Econolite closed loop systems shall be supplied. The latest model and software version of master controller shall be supplied.

Functional requirements in addition to those in Section 863 of the Standard Specifications include:

The system commands shall consist of, as a minimum, six (6) cycle lengths, five (5) offsets, three (3) splits, and four (4) special functions. The system commands shall also include commands for free or coordinated operation.

Traffic Responsive operation shall consist of the real time acquisition of system detector data, data validation, and the scaling of acquired volumes and occupancies in a deterministic fashion so as to cause the selection and implementation of the most suitable traffic plan.

Upon request by the Engineer, each master shall be delivered with up to three (3) complete sets of the latest edition of registered remote monitoring software with full manufacture's support. Each set shall consist of software on CD, DVD, or other suitable media approved by the Engineer, and a bound set of manuals containing loading and operating instruction. One copy of the software and support data shall be delivered to the Agency in charge of system operation, if other than IDOT. One of these two sets will be provided to the Agency Signal Maintenance Contractor for use in monitoring the system.

The approved manufacturer of equipment shall loan the District one master controller and two intersection controllers of the most recent models and the newest software version to be used for instructional purposes in addition to the equipment to be supplied for the Contract.

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the master controller. This shall be accomplished through the following process utilizing District One staff. This telephone line may be coupled with a DSL line and a phone filter to isolate the dial-up line. An E911 address is required.

The cabinet shall be provided with an Outdoor Network Interface for termination of the telephone service. It shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service at a later date.

Full duplex communication between the master and its local controllers is recommended, but at this time not required. The data rate shall be 1200 baud minimum and shall be capable of speeds to 38,400 or above as technology allows. The controller, when installed in an Ethernet topology, may operate non-serial communications.

The cabinet shall be equipped with a 9600 baud, auto dial/auto answer modem. It shall be a US robotics 33.6K baud rate or equal.

As soon as practical or within one week after the contract has been awarded, the Contractor shall contact DuPage County DOT at (630) 407-6900 for installation of a phone line.
It is, therefore, imperative that the phone line conduit and pull-string be installed by the Contractor as soon as possible.

The telephone line shall be installed and activated one month before the system final inspection.

All costs associated with the telephone line installation and activation will be DuPage County's responsibility.

Basis of Payment.
This work will be paid for at the contract unit price each for MASTER CONTROLLER or MASTER CONTROLLER (SPECIAL).

UNINTERRUPTABLE POWER SUPPLY, SPECIAL
DuDOT Effective: April 19, 2016

This work shall be in accordance with section 862 of the Standard Specification except as modified herein

Add the following to Article 862.01 of the Standard Specifications:

The UPS shall have the power capacity to provide normal operation of a signalized intersection that utilizes all LED type signal head optics, for a minimum of 10 (ten) hours.

Add the following to Article 862.02 of the Standard Specifications:

Materials shall be according to Article 1074.04 as modified in UNINTERRUPTABLE POWER SUPPLY, SPECIAL.

Add the following to Article 862.03 of the Standard Specifications:

The UPS shall additionally include, but not be limited to, a battery cabinet, where applicable.
The UPS shall provide reliable emergency power to the traffic signals in the event of a power failure or interruption.

Revise Article 862.04 of the Standard Specifications to read:

Installation.
When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured to the existing controller cabinet by means of at least four (4) stainless steel bolts. The UPS cabinet shall be completely enclosed with the bottom and back constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

At locations where UPS is installed and an Emergency Vehicle Priority System is in use, any existing incandescent confirmation beacons shall be replaced with LED lamps in accordance with the District One Emergency Vehicle Priority System specification at no additional cost to the contract. A concrete apron shall be provided and be in accordance with Articles 424 and 202 of the Standard Specifications. The concrete apron shall also, follow the District 1 Standard Traffic Signal Design Detail, Type D for Ground Mounted Controller Cabinet and UPS Battery Cabinet.

This item shall include any required modifications to an existing traffic signal controller as a result of the addition of the UPS including the addition of alarms.

Materials.
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 load. The UPS must be able to maintain the intersection's normal operating load plus 20 percent (20%) of the intersection's normal operating load. When installed at a railroad-interconnected intersection the UPS must maintain the railroad pre-emption load, plus 20 percent (20%) of the railroad preemption-operating load. The total connected traffic signal load shall not exceed the published ratings for the UPS.
The UPS shall provide a minimum of 10 (ten) hours of normal operation run-time for signalized intersections with LED type signal head optics at 77 °F (25 °C) (minimum 1000 W active output capacity, with 86 percent minimum inverter efficiency).

Revise the first paragraph of Article 1074.04(a)(3) of the Standard Specifications to read:

The UPS shall have a minimum of four (4) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans.

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

The UPS shall be compatible with the District'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, luminaires, 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.

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

The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm).

End of paragraph 1074.04(b)(2)e

The door shall be equipped with a two position doorstop, one a 90^{o} and one at 120^{o}.

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

The door shall open to the entire cabinet, 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 include standard RS-232 and internal Ethernet interface.

(10) The UPS shall incorporate a flanged electric generator inlet for charging the batteries and operating the UPS. The generator connector shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate.

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

(11) The bypass switch shall include an internal power transfer relay that allows removal of the battery back-up unit, while the traffic signal is connected to utility power, without impacting normal traffic signal operation.

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 10 (ten) 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.

(10) Battery Heater mats shall be provided, when gel cell type batteries are supplied.

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

(e) Warranty. The warranty for an uninterruptable power supply (UPS) and batteries (full replacement) shall cover a minimum of 5 years from date the equipment is placed in operation.

(f) Installation. Bypass switch shall completely disconnect the traffic signal cabinet from the utility provider.

(g) The UPS shall be set-up to run the traffic signal continuously, without going to a red flashing condition, when switched to battery power unless otherwise directed by the Engineer. The Contractor shall confirm set-up with the Engineer. The continuous operation mode when switched to battery may require modification to unit connections and these modifications are included in the unit price for this item.

Revise Article 862.05 of the Standard Specifications to read:

Basis of Payment.
This work will be paid for at the contract unit price per each for UNINTERRUPTABLE POWER SUPPLY, SPECIAL or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL.

Replacement of Emergency Vehicle Priority System confirmation beacons and any required modifications to the traffic signal controller shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY, SPECIAL or UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL item. The concrete apron and earth excavation required shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY AND CABINET, SPECIAL item.

FIBER OPTIC CABLE
Effective: May 22, 2002
Revised: July 1, 2015
871.01TS

Add the following to Article 871.01 of the Standard Specifications:

The Fiber Optic cable shall be installed in conduit or as specified on the plans.

Add the following to Article 871.02 of the Standard Specifications:

The control cabinet distribution enclosure shall be 24 Port Fiber Wall Enclosure, unless otherwise indicated on plans. The fiber optic cable shall provide twelve fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. Fiber Optic cable may be gel filled or have an approved water blocking tape.

Add the following to Article 871.04 of the Standard Specifications:

A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled “spare." Fibers not attached to the distribution enclosure shall be capped.. A minimum of 13.0 feet (4m) of extra cable length shall be provided for controller cabinets. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Add the following to Article 871.06 of the Standard Specifications:

The distribution enclosure and all connectors will be included in the cost of the fiber optic cable.

Testing shall be in accordance with Article 801.13(d). Electronic files of OTDR signature traces shall be provided in the Final project documentation with certification from the Contractor that attenuation of each fiber does not exceed 3.5 dB/km nominal at 850nm for multimode fiber and 0.4 bd/km nominal at 1300nm for single mode fiber.

ELECTRIC CABLE
Effective: May 22, 2002
Revised: July 1, 2015
873.01TS

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.

EMERGENCY VEHICLE PRIORITY SYSTEM LINE SENSOR CABLE, NO. 20 3/C
Effective: January 1, 2013
Revised: July 1, 2015
873.03TS

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 vendor 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.

RAILROAD INTERCONNECT CABLE
Effective: May 22, 2002
Revised: July 1, 2015
873.04TS

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

Add to Article 873.02 of the Standard Specifications:

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

Add the following to Article 873.06 of the Standard Specifications:

Basis of Payment.
This work shall be paid for at the contract unit price per foot (meter) 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.

TRAFFIC SIGNAL POST
Effective: May 22, 2002
Revised: July 01, 2015
875.01TS

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

Washers for post bases shall be the same size or larger than the nut.

Revise the first sentence of Article 1077.01 (d) of the Standard Specifications to read:

All posts and bases shall be steel and hot dipped galvanized according to AASHTO M 111. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions.

PEDESTRIAN PUSH-BUTTON POST
Effective: May 22, 2002
Revised: July 01, 2015
876.01TS

Revise the first sentence of Article 1077.02 (a) of the Standard Specifications to read:

The steel post shall be according to Article 1077.01. Washers for post bases shall be the same size or larger than the nut.

Revise the first sentence of Article 1077.02 (a) of the Standard Specifications to read:

All posts and bases shall be steel and hot dipped galvanized according to AASHTO M 111. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions.

MAST ARM ASSEMBLY AND POLE
Effective: May 22, 2002
Revised: April 19, 2016
877.01TS

Add the following to Article 1077.03 (a) of the Standard Specifications:

The base of the mast arm pole shall be protected by a stainless steel screening.

Revise the second sentence of Article 1077.03 (a)(3) of the Standard Specifications to read:

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer.

Add the following to Article 1077.03 (a)(3) of the Standard Specifications:

If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with 851.01TS TRAFFIC SIGNAL PAINTING Special Provisions.

CONCRETE FOUNDATIONS
Effective: May 22, 2002
Revised: July 01, 2015
878.01TS

Add the following to Article 878.03 of the Standard Specifications:

All anchor bolts shall be according to Article 1006.09, with all anchor bolts hot dipped galvanized a minimum of 12 in. (300 mm) at the threaded end.

Foundations used for Combination Mast Arm Poles shall provide an extra 2-1/2 inch (65 mm) raceway.

No foundation is to be poured until the Resident Engineer gives his/her approval as to the depth of the foundation.

Add the following to the first paragraph of Article 878.05 of the Standard Specifications:

The price shall include a concrete apron in front of the cabinet and UPS as shown in the plans or as directed by the engineer.

REMOVE AND REPLACE ANCHOR BOLTS
Effective: January 1, 2014
Revised: July 1, 2015
878.02TS

This item shall consist of replacing anchor rods at existing concrete foundations for traffic signal posts. At locations specified on the plans for new traffic signal post installation, the Contractor shall inspect the existing post foundations prior to removing the existing traffic signal post. The Contractor shall verify that the pattern, spacing, and condition of the existing anchor bolts are acceptable for reuse with a new post. The Contractor shall replace unacceptable anchor bolts as approved by the Engineer.

Anchor bolts shall be according to Article 1006.09 and shall be hot dipped galvanized.

Installation.
Existing anchor bolts shall be cut flush with the top of concrete foundation.

The bolt circle of the new anchor bolts shall be rotated a minimum of 2.5-inches away from the existing anchor bolts. New anchor bolts shall be ¾-inch diameter with minimum 9-inch embedment into the existing concrete foundation and 3-inch threaded length above the top of foundation. New anchor bolts shall be installed using a HIT-RE 500 exposed adhesive anchoring system.

Method of Measurement.
The removal and replacement of anchor bolts will be measured for payment as per each foundation requiring anchor bolt replacement. This shall include all anchor bolts replaced, labor, equipment, and materials required for replacing anchor bolts at an existing foundation as specified herein.

Basis of Payment.
This item will be paid for at the contract unit price each for REMOVE AND REPLACE ANCHOR BOLTS.

LIGHT EMITTING DIODE (LED) SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD
Effective: May 22, 2002
Revised: July 1, 2015
880.01TS

Materials.
Add the following to Section 1078 of the Standard Specifications:

1. LED modules proposed for use and not previously approved by IDOT District One will require independent testing for compliance to current VTCSH-ITE standards for the product and be Intertek ETL Verified. This would include modules from new vendors and new models from IDOT District One approved vendors.

2. The proposed independent testing facility shall be approved by IDOT District One. Independent testing must include a minimum of two (2) randomly selected modules of each type of module (i.e. ball, arrow, pedestrian, etc.) used in the District and include as a minimum Luminous Intensity and Chromaticity tests. However, complete module performance verification testing may be required by the Engineer to assure the accuracy of the vendor's published data and previous test results. An IDOT representative will select sample modules from the local warehouse and mark the modules for testing. Independent test results shall meet current ITE standards and vendor's published data. Any module failures shall require retesting of the module type. All costs associated with the selection of sample modules, testing, reporting, and retesting, if applicable, shall be the responsibility of the LED module vendor and not be a cost to this contract.

3. All signal heads shall provide 12" (300 mm) displays with glossy yellow or black polycarbonate housings. All head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all signals heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion 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. Post top mounting collars are required on all posts, and shall be constructed of the same material as the brackets.

4. The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first 7 years from the date of traffic signal TURN-ON. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (June 27, 2005) [VTSCH], or applicable successor ITE specifications, or show signs of entrance of moisture or contaminants within the first 7 years of the date of traffic signal TURN-ON shall be replaced or repaired. The vendor's written warranty for the LED signal modules shall be dated, signed by a vendor's representative and included in the product submittal to the State.

(a) Physical and Mechanical Requirements

1. Modules can be manufactured under this specification for the following faces:

   a. 12 inch (300 mm) circular, multi-section
   b. 12 inch (300 mm) arrow, multi-section

2. The maximum weight of a module shall be 4 lbs. (1.8 kg).

3. Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

5. The lens of the 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. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.

6. The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.

7. Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 inch (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 inch (12.7mm) letters next to the symbol.

(b) Photometric Requirements

4. The LEDs utilized in the modules shall be AlInGaP technology for red and InGaN for green and amber indications, and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40 °C to +74 °C.

(c) Electrical

1. Maximum power consumption for LED modules is per Table 2.

2. Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.

3. The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

4. When a current of 20 mA AC (or less) is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.

5. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

6. LED arrows shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

(d) Retrofit Traffic Signal Module

1. The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.

2. Retrofit modules can be manufactured under this specification for the following faces:

   a. 12 inch (300 mm) circular, multi-section
   b. 12 inch (300 mm) arrow, multi-section

3. Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.

4. The maximum weight of a Retrofit module shall be 4 lbs. (1.8 kg).

5. Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

6. Electrical conductors for modules, including Retrofit modules, shall be 39.4 inches (1m) in length, with quick disconnect terminals attached.

7. The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.

(e) The following specification requirements apply to the 12 inch (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.

1. The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) or applicable successor ITE specifications for arrow indications.

2. 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.

(f) The following specification requirement applies to the 12 inch (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.

1. The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.

Basis of Payment.
Add the following to the first paragraph of Article 880.04 of the Standard Specifications:

The price shall include furnishing the equipment described above, all mounting hardware and installing them in satisfactory operating condition.

Revise the second paragraph of Article 880.04 of the Standard Specifications to read:

If the work consists of retrofitting an existing polycarbonate traffic signal head with light emitting diodes (LEDs), it will be paid for as a SIGNAL HEAD, LED, RETROFIT, of the type specified, and of the particular kind of material, when specified. Price shall be payment in full for removal of the existing module, furnishing the equipment described above including LED modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of signal faces, the number of signal sections in each signal face and the method of mounting.

FLASHING BEACON INSTALLATION, RELOCATION AND REMOVAL
Effective: January 1, 2007
Revised: July 1, 2015
880.02TS

This work shall consist of furnishing and installing a new flashing beacon installation, solar powered flashing beacon installation, relocation of existing flashing beacon, and/or the removal of the existing flashing beacon installation as shown on the plans and as described herein. The energy charges for the operation of the flashing beacon installation shall be paid for by the Department unless otherwise directed by the Engineer.

The installation, relocation and removal of flashing beacon installation shall be according to the applicable portions of Sections 800 and 1000 of the Standard Specifications for Road and Bridge Construction and District 1 Flashing Beacon Installation Details except as revised herein. LED signal heads shall be as modified in 880.01TS LED SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD Special Provision.

(a) Flashing Beacon Installation. This item shall consist of installing a post mounted 12 inch (300 mm) L.E.D. single section red or yellow flashing beacon on a new or existing post as shown on the plans or as directed by the Engineer. This item shall include furnishing and installing a flasher controller in an aluminum cabinet, or integrated within the signal head, 12 inch (300 mm) L.E.D. red or yellow signal section with a dimmer if required by the Engineer, and all other hardware necessary to complete the installation.

(b) Solar Powered Flashing Beacon Installation. This item shall consist of installation of a solar powered flashing beacon, post mounted as shown on the plans or as directed by the Engineer. This item shall consist of furnishing and installing a 12 inch (300 mm) single red or yellow flashing module on a new or existing post as shown on the plans or as directed by the Engineer. This item shall include furnishing and installing a flasher controller that is integrated within the signal head, with discrete solar panels, LED module, battery, electronics, compact housing and be capable of operating 24 hours, 7 days a week. The flasher unit shall be installed on standard wood or metal posts. The flash pattern shall be MUTCD compliant and have alternate flash patterns available. The battery shall have a life span of a minimum of 5 years and be field replaceable. The battery and electronics may be located inside the solar panel housing or signal head. The sections of the flasher unit shall be secured with tamper resistant stainless steel hardware and unless otherwise noted, the housing shall be black in color.

(c) Relocate Existing Flashing Beacon. Relocation of an existing flashing beacon installation, as shown on the plans or as directed by the Engineer, shall meet the above requirements. This work shall include the complete relocation of the existing flashing beacon installation, the backfilling of the holes created by the removal of the poles, restoration of the surface to match the adjoining area.

(d) Remove Existing Flashing Beacon Installation Complete. Removal of an existing flashing beacon installation shall be as shown on the plans or as directed by the Engineer and shall be according to applicable portions of Section 895 of the Standard Specifications. This work shall include a complete removal of an existing flashing beacon installation, backfilling of the holes created by the removal of the poles and restoration of the surface to match the adjoining area. The flashing beacon installation will be removed only after the permanent signal installation is accepted for maintenance, or as directed by the Engineer.

Basis of Payment.
This work shall be paid for at the contract unit price each for FLASHING BEACON INSTALLATION; SOLAR POWERED FLASHING BEACON INSTALLATION; RELOCATE EXISTING FLASHING BEACON or REMOVE EXISTING FLASHING BEACON INSTALLATION COMPLETE. The price shall be payment in full for all labor and material necessary to complete the work described above.

LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD
Effective: May 22, 2002
Revised: July 1, 2015
881.01TS

Add the following to the third paragraph of Article 881.03 of the Standard Specifications:

No mixing of different types of pedestrian traffic signals or displays will be permitted.

Add the following to Article 881.03 of the Standard Specifications:

(a) Pedestrian Countdown Signal Heads.

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

(2) Pedestrian Countdown Signal Heads shall be 16 inch (406mm) x 18 inch (457mm), for single units with glossy yellow or black polycarbonate housings. All pedestrian head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all pedestrian heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion 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.

(3) Each pedestrian signal LED module shall be fully MUTCD compliant and shall consist of double overlay message combining full LED symbols of an Upraised Hand and a Walking Person. "Egg Crate" type sun shields are not permitted. Numerals shall measure 9 inches (229mm) in height and easily identified from a distance of 120 feet (36.6m).

Materials.
Add the following to Article 1078.02 of the Standard Specifications:

General.

1. The module shall operate in one mode: Clearance Cycle Countdown Mode Only. The countdown module shall display actual controller programmed clearance cycle and shall start counting when the flashing clearance signal turns on and shall countdown to "0" and turn off when the steady Upraised Hand (symbolizing Don't Walk) signal turns on. Module shall not have user accessible switches or controls for modification of cycle.

2. At power on, the module shall enter a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.

3. The module shall re-program itself if it detects any increase or decrease of Pedestrian Timing. The counting unit will go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.

4. If the controller preempts during the Walking Person (symbolizing Walk), the countdown will follow the controller's directions and will adjust from Walking Person to flashing Upraised Hand. It will start to count down during the flashing Upraised Hand.

5. If the controller preempts during the flashing Upraised Hand, the countdown will continue to count down without interruption.

6. The next cycle, following the preemption event, shall use the correct, initially programmed values.

7. If the controller output displays Upraised Hand steady condition and the unit has not arrived to zero or if both the Upraised Hand and Walking Person are dark for some reason, the unit suspends any timing and the digits will go dark.

8. The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.

9. The countdown numerals shall be two (2) “7 segment” digits forming the time display utilizing two rows of LEDs.

10. The LED module shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, “Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules,” or applicable successor ITE specifications, except as modified herein.

11. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

12. In the event of a power outage, light output from the LED modules shall cease instantaneously.

13. The LEDs utilized in the modules shall be AlInGaP technology for Portland Orange (Countdown Numerals and Upraised Hand) and GaN technology for Lunar White (Walking Person) indications.

14. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

Basis of Payment.
Add the following to the first paragraph of Article 881.04 of the Standard Specifications:

The price shall include furnishing the equipment described above, all mounting hardware and installing them in satisfactory operating condition.

Add the following to Article 881.04 of the Standard Specifications:

If the work consists of retrofitting an existing polycarbonate pedestrian signal head and pedestrian countdown signal head with light emitting diodes (LEDs), it will be paid for as a PEDESTRIAN SIGNAL HEAD, LED, RETROFIT, of the type specified, and of the particular kind of material, when specified. Price shall be payment in full for furnishing the equipment described above including LED modules, all mounting hardware, and installing them in satisfactory operating condition.

TRAFFIC SIGNAL BACKPLATE
Effective: May 22, 2002
Revised: July 1, 2015
882.01TS

Delete 1st sentence of Article 1078.03 of the Standard Specifications and add "All backplates shall be louvered, formed ABS plastic".

Add the following to the third paragraph of Article 1078.03 of the Standard Specifications. The retroreflective backplate shall not contain louvers.

Delete second sentence of the fourth paragraph of Article 1078.03 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 vendor's recommendations. The retroreflective sheeting shall be installed under a controlled environment at the vendor/equipment supplier before shipment to the contractor. The formed plastic backplate shall be prepared and cleaned, following recommendations of the retroreflective sheeting manufacturer.

DETECTOR LOOP
DuDOT Effective: April 19, 2016

Procedure.
A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall mark the proposed loop locations and contact DuPage County DOT (630) 407-6900 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the Portland cement concrete surface, using the same notification process as above.

Installation.
Revise Article 886.04 of the Standard Specifications to read:
Loop detectors shall be installed according to the requirements of the "District One 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 when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plan.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a water proof tag, from an approved vendor, secured to each wire with nylon ties.

Resistance to ground shall be a minimum of 100 mega-ohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries. Quality readings shall be more than 5.

(a) Type I. All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement, curb and handhole shall be cut with a 1/4 inch (6.3 mm) deep x 4 inches (100 mm) saw cut to mark location of each loop cable.

(b) Loop sealant shall be two-component thixotropic chemically cured polyurethane from an approved vendor. The sealant shall be installed 1/8 inch (3 mm) below the pavement surface. If installed above the surface the excess shall be removed immediately.

(c) Preformed. This work shall consist of furnishing and installing a rubberized or cross linked polyethylene heat resistant preformed traffic signal loop in accordance with the Standard Specifications, except for the following:

(d) Preformed detector loops shall be installed in new pavement constructed of Portland cement concrete using mounting chairs or tied to re-bar or the preformed detector loops may be placed in the sub-base. Loop lead-ins shall be extended to a temporary protective enclosure near the proposed handhole location. The protective enclosure shall provide sufficient protection from other construction activities and may be buried for additional protection.

(e) Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole. CNC, included in this pay item, shall be used to protect the preformed lead-ins from back of curb to the handhole.

(f) Preformed detector loops shall be factory assembled with ends capped and sealed against moisture and other contaminants. The loop configurations and homerun lengths shall be assembled for the specific application. The loop and homerun shall be constructed using 11/16 inch (17.2 mm) outside diameter (minimum), 3/8 inch (9.5 mm) inside diameter (minimum) Class A oil resistant synthetic cord reinforced hydraulic hose with 250 psi (1,720 kPa) internal pressure rating or a similarly sized XLPE cable jacket. 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 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. For XLPE jacketed preformed loops, all splice connections shall be soldered, sealed, and tested before being sealed in a high impact glass impregnated plastic splice enclosure. 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. The preformed loops shall be constructed to allow a minimum of 6.5 feet of extra cable in the handhole.

Method of Measurement.

Add the following to Article 886.05 of the Standard Specifications:

Preformed detector loops will be measured along the detector loop embedded in the pavement, rather than the actual length of the wire. Detector loop measurements shall include the saw cut and the length of the detector loop wire to the edge of pavement. The detector loop wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be included in the price of the detector loop. ~~Unit duct~~CNC, trench and backfill, and drilling of pavement or handholes shall be included in detector loop quantities.

Basis of Payment.
This work shall be paid for at the contract unit price per foot (meter) 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.

DETECTOR LOOP REPLACEMENT AND/OR INSTALLATION (ROADWAY GRINDING, RESURFACING, & PATCHING OPERATIONS)
Effective: January 1, 1985
Revised: January 5, 2016
886.02TS

The following Traffic Signal Special Provisions and the "District 1 Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction" Sections 810, 886, 1079, and 1088.

The intent of this Special Provision is to prescribe the materials and construction methods commonly used to replace traffic signal detector loops and replace magnetic signal detectors with detector loops during roadway resurfacing, grinding and patching operations. Loop detector replacement will not require the transfer of traffic signal maintenance from the District Electrical Maintenance Contractor to this contract's electrical contractor. Replacement of magnetic detector will require wiring revisions inside the control cabinet and therefore the transfer of maintenance will be required. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer.

The work to be provided under this contract consists 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.

Notification of Intent to Work.
Contracts such as pavement grinding or patching which result in the destruction of traffic signal detection require a notification of intent to work and an inspection. A minimum of seven (7) working days prior to the detection removal, the Contractor shall notify the:

- DuPage County DOT at (630) 407-6900
- DuPage County Electrical Maintenance Contractor at (773) 287-7600

at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection.

Failure to provide proper notification may require the District's Electrical Maintenance Contractor to be called to investigate complaints of inadequate traffic signal timing. All costs associated

with these expenses will be paid for by the Contractor at no additional expense to the Department according to Section 109 of the “Standard Specifications.”

Acceptance of Material.
The Contractor shall provide:

1. All material approval requests shall be submitted a minimum of seven (7) days prior to the delivery of equipment to the job site, or within 30 consecutive calendar days after the contract is awarded, or within 15 consecutive calendar days after the preconstruction meeting, whichever is first.
2. Four (4) copies of a letter listing the vendor’s name and model numbers of the proposed equipment shall be supplied. The letter will be reviewed by the Traffic Design Engineer to determine whether the equipment to be used is approved. The letters will be stamped as approved or not approved accordingly and returned to the Contractor.
3. One (1) copy of material catalog cuts.
4. The contract number, permit number or intersection location must be on each sheet of the letter and material catalog cuts as required in items 2 and 3.

Inspection of Construction.
When the road is open to traffic, except as otherwise provided in Section 801 and 850 of the Standard Specifications, the Contractor must request a turn-on and inspection of the completed detector loop installation at each separate location. This request must be made to the DuPage County DOT at (630) 407-6900 a minimum of seven (7) working days prior to the time of the requested inspection.

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal “turn on.” If approved, traffic signal acceptance shall be verbal at the “turn on” inspection followed by written correspondence from the Engineer. If this work is not completed in time, the Department reserves the right to have the work completed by others at the Contractor’s expense.

All cost of work and materials required to comply with the above requirements shall be included in the pay item bid price, 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.

Restoration of Work Area.
Restoration of the traffic signal work area due to the detector loop installation and/or replacement shall be included in the cost of this item. All roadway surfaces such as shoulders, medians, sidewalks, pavement shall be replaced as shown in the plans or in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded.

Removal, Disposal and Salvage of Existing Traffic Signal Equipment.
The removal, disposal, and salvage of existing traffic signal equipment shall be included in the cost of this item. All material and equipment removed shall become the property of the Contractor and disposed of by the Contractor outside the State’s right-of-way. No additional compensation shall be provided to the Contractor for removal, disposal or salvage expense for the work in this contract.

DETECTOR LOOP REPLACEMENT.

This work shall consist of replacing existing detector loops which are destroyed during grinding, resurfacing, or patching operations.

If damage to the detector loop is unavoidable, replacement of the existing detection system will be necessary. This work shall be completed by an approved Electrical Contractor as directed by the Engineer.

Replacement of the loops shall be accomplished in the following manner: The Engineer shall mark the location of the replacement loops. The Traffic Signal Maintenance and Operations Engineer shall be called to approve loop locations prior to the cutting of the pavement. The Contractor may reuse the existing coilable non-metallic conduit (CNC) located between the existing handhole and the pavement if it hasn't been damaged. CNC meeting the requirements of NEC Article 353 shall be used for detector loop raceways to the handholes. All burrs shall be removed from the edges of the existing conduit which could cause damage to the new detector loop during installation. If the existing conduit is damaged beyond repair, if it cannot be located, or if additional conduits are required for each proposed loop; the Contractor shall be required to drill through the existing pavement into the appropriate handhole, and install 1" (25 mm) CNC. This work and the required materials shall not be paid for separately but shall be included in the pay item Detector Loop Replacement. Once suitable CNC raceways is established, the loop may be cut, installed, sealed and spliced to the twisted-shielded lead-in cable in the handhole.
All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement or the curb shall be cut with a 1/4" (6.3 mm) deep x 4" (100 mm) saw-cut to mark location of each loop lead-in.

A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact DUPAGE COUNTY at (630) 407-6900 to inspect and approve the layout.

Loop detectors shall be installed according to the requirements of the "District 1 Standard Traffic Signal Design Details." Saw-cuts from the loop to the edge of pavement shall be made perpendicular to the edge of pavement when possible in order to minimize the length of the saw-cut unless directed otherwise by the Engineer or as shown on the plan.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a water proof tag, from an approved vendor, secured to each wire with nylon ties. The lead-in wire, including all necessary connections for proper operation, from the edge of pavement to the handhole, shall be included in the detector loop pay item.

Loop sealant shall be a two-component thixotropic chemically cured polyurethane. The sealant shall be installed 1/8" (3 mm) below the pavement surface. If installed above the surface the excess shall be removed immediately.

Round loop(s) 6 ft (1.8 m) diameter may be substituted for 6 ft (1.8 m) by 6 ft (1.8 m) square loop(s) and shall be paid for as 24 feet (7.2 m) of detector loop.

Resistance to ground shall be a minimum of 100 mega-ohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries. Quality readings shall be more than 5.

Heat shrink splices shall be used according to the "District 1 Standard Traffic Signal Design Details."

Detector loop replacement shall be measured along the sawed slot in the pavement containing the loop cable up to the edge of pavement, rather than the actual length of the wire in the slot. Drilling handholes, sawing the pavement, furnishing and installing CNC to the appropriate handhole, cable splicing to provide a fully operable detector loop, testing and all trench and backfill shall be included in this item.

Basis of Payment.
Detector Loop Replacement shall be paid for at the contract unit price per foot (meter) of DETECTOR LOOP REPLACEMENT.

MAGNETIC DETECTOR REMOVAL AND DETECTOR LOOP INSTALLATION.
This work shall consist of the removal of existing magnetic detectors, magnetic detector lead-in cable and magnetic detection amplifiers and related control equipment wiring, installation of detector lead-in cable, detector loops, detector amplifiers and related equipment wiring. The detector loop, cable, and amplifier shall be installed according to the applicable portions of the "Standard Specifications" and the applicable portions of the Special Provision for "Detector Loop Replacement." All drilling of handholes, furnishing and installing CNC, cable splicing, trench and backfill, removal of equipment, and removing cable from conduit shall be included in this item.

Basis of Payment.
Magnetic Detector Removal and Detector Loop Installation shall be paid for at the contract unit price per foot (meter) for DETECTOR LOOP, TYPE I, per each for INDUCTIVE LOOP DETECTOR, and foot (meter) for ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR.

RADAR VEHICLE DETECTION SYSTEM
Effective: July 01, 2015
Revised:
886.03TS

Description.
This work shall consist of furnishing and installing a radar vehicle detection system as specified and/or as shown on the plan. This pay item shall include all necessary work and equipment required to have a fully operational system including but not limited to the detector unit/s, the interface unit and all the necessary hardware, cable and accessories required to complete the installation in accordance with the manufacturer's specifications.

The radar vehicle detection system shall work under all weather conditions, including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light. It shall work in an ambient temperature range of -34 to 74 degrees Celsius. It shall have a max power output of 75 watts or less.

The radar vehicle detection system shall be compatible with the District's approved traffic controller assemblies utilizing NEMA TS 1 or NEMA TS 2 controllers and cabinet components for full time operation. The radar vehicle detection system shall provide a minimum of one

interface unit that has Ethernet connectivity, surge protection and shall be capable of supporting a minimum of 4 detector units.

The far back radar detection shall have a detection range of 400 feet or better.

A representative from the supplier of the radar vehicle detection system shall supervise the installation and testing of the radar vehicle detection system and shall be present at the traffic signal turn-on inspection. Once the radar vehicle detection system is configured, it shall not need reconfiguration to maintain performance, unless the roadway configuration or the application requirements change.

The mounting location/s of the detector unit/s shall be per the manufacturer's recommendations. If an extension mounting assembly is needed, it shall be included in this item. All holes drilled into signal poles, mast arms, or posts shall require rubber grommets to prevent chafing of wires.

The radar vehicle detection system shall be warrantied, free from material and workmanship defects for a period of two years from final inspection.

Basis of Payment.
This work shall be paid for at the contract unit price each for RADAR VEHICLE DETECTION SYSTEM, SINGLE APPROACH, STOP BAR; RADAR VEHICLE DETECTION SYSTEM, SINGLE APPROACH, FAR BACK; RADAR VEHICLE DETECTION SYSTEM, SINGLE APPROACH, STOP BAR AND FAR BACK, the price of which shall include the cost for all of the work and material described herein and includes furnishing, installing, delivery, handling, testing, set-up and all appurtenances and mounting hardware necessary for a fully operational radar vehicle detection system.

EMERGENCY VEHICLE PRIORITY SYSTEM
Effective: May 22, 2002
Revised: July 1, 2015
887.01TS

Revise Section 887 of the Standard Specifications to read:

It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle pre-emption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency.

All new installations shall be equipped with Confirmation Beacons as shown on the "District One Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, or a 7 watt Par 30 LED flood lamp with a 15 degree or greater spread, maximum 7 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. 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. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be

signalized by a flashing indication at the rate specified by Section 4L.01 of the "Manual on Uniform Traffic Control Devices," and other applicable sections of future editions. The stopped pre-empted movements shall be signalized by a continuous indication.

All light operated systems shall include security and transit preemption software and operate at a uniform rate of 14.035 Hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District.

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 preemption 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.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT
Effective: January 1, 2002
Revised: July 1, 2015
887.02TS

This item shall consist of the removal, storage, and relocation of the existing emergency vehicle priority system, detector unit (single channel or dual channel) from its existing location to a new traffic signal post or mast arm assembly and pole, and connecting it to an emergency vehicle priority system, phasing unit. If the existing Emergency Vehicle Priority System, Detector Unit Assembly includes a Confirmation Beacon, the Confirmation Beacon shall also be relocated and connected to the Emergency Vehicle Priority System, Detector Unit and shall be included at no cost in this item.

The light detector and beacon shall be removed and safely stored as directed by the Engineer. Any damage sustained to the light detector during removal, storage, and reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment.

Installation of the light detector shall be according to Article 887.03 of the Standard Specifications.

Basis of Payment.
This item will be paid for at the contract unit price each for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT, which price shall include all

equipment, labor, and materials necessary to complete this work as specified, including repair or replacement if necessary.

RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT
Effective: January 1, 2002
Revised: July 1, 2015
887.03TS

This item shall consist of the removal, storage, and relocation of the existing emergency vehicle priority system phasing unit from an existing traffic signal controller cabinet to a new traffic signal controller cabinet, as indicated in the plans or as directed by the Engineer.

The work shall include disconnecting the emergency vehicle priority system phasing unit(s) and reconnecting it into the new traffic signal controller cabinet.

The light detector amplifier shall be removed and safely stored as directed by the Engineer. Any damage sustained to the light detector amplifier during removal, storage, and reinstallation operations shall be repaired or replaced in kind to the satisfaction of the Engineer at the Contractor's expense.

The emergency vehicle system is not to be inoperative for more than 8 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnection of the equipment. The Contractor must demonstrate to the satisfaction of the Engineer that the emergency vehicle system operates properly.

Installation of the light detector amplifier shall be according to Article 887.03 of the Standard Specifications.

Basis of Payment.
This item will be paid for on a basis of one (1) each per intersection for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT, which price shall include all equipment, labor, and materials necessary to complete this work as specified, including repair or replacement if necessary.

CONFIRMATION BEACON
Effective: January 1, 2002
Revised: July 1, 2015
887.04TS

This item shall consist of furnishing and installing a Traffic Signal Emergency Confirmation Beacon (single channel or dual channel) at the locations specified on the plans and as described as follows for intersections which have existing emergency preemption systems previously installed.

Confirmation Beacon, Single Channel - Where the light detector is used to detect a single direction of traffic, one LED lamp for only that direction shall be provided. In cases where the detector covers opposing directions of traffic and has a single output, a separate lamp for each direction shall be provided but they shall have identical indications.

Confirmation Beacon, Dual Channel - A separate LED lamp with appropriate separate indications for each direction shall be provided.

It shall be the Contractor's responsibility to verify the existing brand of emergency vehicle equipment at the intersection and the confirmation beacons must be completely compatible with all existing components. The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, or a 7 watt Par 30 LED flood lamp with a 15 degree or greater spread, maximum 7 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. The lamp shall have an adjustable mount with a weatherproof enclosure for cable splicing. All hardware shall be cast aluminum or stainless steel. No new holes may be drilled into signal poles, mast arms, or posts. The Confirmation Beacon shall be mounted to the existing light detector hardware as shown on the mounting detail in the plans. In order to maintain uniformity between communities, the Confirmation Beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signalized by a flashing indication at the rate specified by Section 4L.01 of the "Manual on Uniform Traffic Control Devices," and other applicable sections of future editions. The stopped pre-empted movements shall be signalized by a continuous indication.

Any modification required to the existing light detector installation to meet the requirements of the mounting detail shown in the plans shall be included in this item.

Basis of Payment.
This work will be paid for at the contract unit price per each for CONFIRMATION BEACON.

PEDESTRIAN PUSH-BUTTON
Effective: May 22, 2002
Revised: July 1, 2015
888.01TS

Description.
Revise Article 888.01 of the Standard Specifications to read:

This work shall consist of furnishing and installing a latching (single call) or non-latching (dual call) pedestrian push-button and a regulatory pedestrian instruction sign according to MUTCD, sign series R10-3e 9" x 15" sign with arrow(s) for a count-down pedestrian signal. The pedestrian station sign size without count-down pedestrian signals shall accommodate a MUTCD sign series R10-3b or R10-3d 9" x 12" sign with arrow(s).

Installation.
Add the following to Article 888.03 of the Standard Specifications:

A mounting bracket and/or extension shall be used to assure proper orientation when two pedestrian push buttons are required for one post. The price of the bracket and/or extension shall be included in the cost of the pedestrian push button. The contractor is not allowed to install a push-button assembly with the sign below the push-button in order to meet mounting requirements.

Materials.
Revise Article 1074.02(a) of the Standard Specifications to read:

The pedestrian push-button housing shall be constructed of aluminum alloy according to ASTM B 308 6061-T6 and powder coated yellow, unless otherwise noted on the plans. The housing shall be furnished with suitable mounting hardware.

Revise Article 1074.02(e) of the Standard Specifications to read:

Stations shall be designed to be mounted to a post, mast arm pole or wood pole. The station shall be aluminum and shall accept a 3 inch (75mm) round push-button assembly and a regulatory pedestrian instruction sign according to MUTCD, sign series R10-3e 9" x 15" sign with arrow(s) for a count-down pedestrian signal. The pedestrian station size without count-down pedestrian signals shall accommodate a MUTCD sign series R10-3b or R10-3d 9" x 12" sign with arrow(s).

Add the following to Article 1074.02 of the Standard Specifications:

(f) Location. Pedestrian push-buttons and stations shall be mounted to a post, mast arm pole or wood pole as shown on the plans and shall be fully ADA accessible from a paved or concrete surface. See the District's Detail sheets for orientation and mounting details.

Basis of Payment.
Revise Article 888.04 of the Standard Specifications to read:

This work will be paid for at the contract unit price per each for PEDESTRIAN PUSH-BUTTON or PEDESTRIAN PUSH-BUTTON, NON-LATCHING.

ACCESSIBLE PEDESTRIAN SIGNALS
Effective: April 1, 2003
Revised: July 1, 2015
888.02TS

Description.
This work shall consist of furnishing and installing pedestrian push button accessible pedestrian signals (APS) type. Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

Electrical Requirements.
The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -29 to +160 °F (-34 to +70 °C).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications.
A pushbutton locator tone shall sound at each pushbutton with volume settings a maximum of 5 dBA louder than ambient sound.

If two accessible pedestrian pushbuttons are placed less than 10 ft (3 m) apart or placed on the same pole, the audible walk indication shall be a speech walk message.

A clear, verbal message shall be used to communicate the pedestrian walk interval. This message shall sound throughout the WALK interval only. The verbal message shall be modeled after: "Street Name." Walk Sign is on to cross "Street Name." No other messages shall be used to denote the WALK interval.

Where two accessible pedestrian pushbuttons are separated by at least 10 ft (3 m), the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz.

Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound.

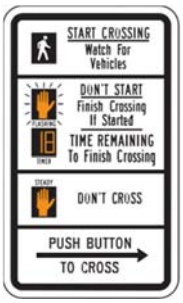
Pedestrian Pushbutton.
Pedestrian pushbuttons shall be at least 2 in. (50 mm) in diameter or width. The force required to activate the pushbutton shall be no greater than 3.5 lb (15.5 N).

A red LED indicator shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street. The recorded messages and roadway designations shall be confirmed with the engineer and included with submitted product data.

Signage.
A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall be one of the following standard MUTCD designs: R10-3b, R10-3d, or R10-3e.

R10-3b

R10-3d



R10-3e

Tactile Arrow.
A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided either on the pushbutton or its sign.

Vibrotactile Feature.
The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Training.

The Contractor shall provide APS onsite training for Department personnel and person(s) or group that requested the installation of the APS. APS features and operation shall be demonstrated during the training. The training shall be presented by the APS equipment supplier. Time, date, and location of the training and demonstration shall be coordinated with the Engineer.

Basis of Payment.
This work will be paid for at the contract unit price each for a pedestrian push button, ACCESSIBLE PEDESTRIAN SIGNALS type and shall include furnishing, installation, mounting hardware, message programming, and training.

TEMPORARY TRAFFIC SIGNAL INSTALLATION
Effective: May 22, 2002
Revised: July 1, 2015
890.01TS

Revise Section 890 of the Standard Specifications to read:

Description.
This work shall consist of furnishing, installing, maintaining, and removing a temporary traffic signal installation as shown on the plans, including but not limited to temporary signal heads, emergency vehicle priority systems, interconnect, vehicle detectors, uninterruptable power supply, and signing. Temporary traffic signal controllers and cabinets interconnected to railroad traffic control devices shall be new. When temporary traffic signals will be operating within a county or local agency Traffic Management System, the equipment must be NTCIP compliant and compatible with the current operating requirements of the Traffic Management System.

General.
Only an approved controller equipment supplier will be allowed to assemble temporary traffic signal and railroad traffic signal cabinet. Traffic signal inspection and TURN-ON shall be according to 800.01TS TRAFFIC SIGNAL GENERAL REQUIREMENTS special provision.

Construction Requirements.

(a) Controllers.

1. Only controllers compatible with Econolite software currently in use by the County, will be approved for use at temporary signal locations. Only controllers supplied by one of the District approved closed loop equipment supplier will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS2 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 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 railroad interconnected temporary controllers and cabinets shall be new and shall satisfy the requirements of Article 857.02 of the Standard Specifications and as modified herein.

2. Only control equipment, including controller cabinet and peripheral equipment, supplied by one of the District approved closed loop equipment suppliers will be approved for use at temporary traffic signal locations. All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be the same manufacturer brand and model number with the latest version software installed at the time of the signal TURN-ON.

(b) Cabinets. 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 (100 mm) diameter holes to run the electric cables through. The 4 inch (100 mm) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

(c) Grounding. 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 shall meet the requirements of the 806.01TS GROUNDING OF TRAFFIC SIGNAL SYSTEMS special provision.

(d) Traffic Signal Heads. All traffic signal sections shall be 12 inches (300 mm). Pedestrian signal sections shall be 16 inch (406mm) x 18 inch (457mm). Traffic signal sections shall be LED with expandable view, unless otherwise approved by the Engineer. Pedestrian signal heads shall be Light Emitting Diode (LED) Pedestrian Countdown Signal Heads except when a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing. When a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing, Light Emitting Diode (LED) Pedestrian Signal Heads shall be furnished. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. If no traffic staging is in place or will not be staged on the day of the turn on, the temporary traffic signal shall have the signal head displays, signal head placements and controller phasing match the existing traffic signal or shall be as directed by the engineer. The Contractor shall furnish enough extra cable length 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.

(e) Interconnect.

1. Temporary traffic signal interconnect shall be provided using fiber optic cable or wireless interconnect technology as specified in the plans. The Contractor may

request, in writing, to substitute the fiber optic temporary interconnect indicated in the contract documents with a wireless interconnect. The Contractor must provide assurances that the radio device will operate properly at all times and during all construction staging. If approved for use by the Engineer, the Contractor shall submit marked-up traffic signal plans indicating locations of radios and antennas and installation details. If wireless interconnect is used, and in the opinion of the engineer, it is not viable, or if it fails during testing or operations, the Contractor shall be responsible for installing all necessary poles, fiber optic cable, and other infrastructure for providing temporary fiber optic interconnect at no cost to the contract.

2. The existing system interconnect and phone lines are to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. The interconnect, including any required fiber splices and terminations, shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be included in the cost of TEMPORARY TRAFFIC SIGNAL INSTALLATION. When shown in the plans, temporary traffic signal interconnect equipment shall be furnished and installed. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project. Any temporary signal within an existing closed loop traffic signal system shall be interconnected to that system using similar brand control equipment at no additional cost to the contract.

3. Temporary wireless interconnect. The radio interconnect system shall be compatible with Eagle or Econolite controller closed loop systems. This work shall include all temporary wireless interconnect components, at the adjacent existing traffic signal(s) to provide a completely operational closed loop system. This work shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnect system shall include the following components:

    a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio
    b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)
    c. Antennas (Omni Directional or Yagi Directional)
    d. Antenna Cables, LMR400, Low Loss. Max. 100-ft from controller cabinet to antenna
    e. Brackets, Mounting Hardware, and Accessories Required for Installation
    f. RS232 Data Cable for Connection from the radio to the local or master controller
    g. All other components required for a fully functional radio interconnect system

    All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect

system components shall be included in the cost of TEMPORARY TRAFFIC SIGNAL INSTALLATION.

The radio interconnect system may operate at 900Mhz (902-928) or 2.4 Ghz depending on the results of a site survey. The telemetry shall have an acceptable rate of transmission errors, time outs, etc. comparable to that of a hardwire system.

The proposed or existing master controller and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

The radio interconnect system shall include all other components required for a complete and fully functional telemetry system and shall be installed in accordance to the vendors recommendations.

(f) Emergency Vehicle Pre-Emption. All emergency vehicle preemption 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 preemption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be included in the item Temporary Traffic Signal Installation.

(g) Vehicle Detection. All temporary traffic signal installations shall have vehicular detection installed at all approaches of the intersection and as directed by the Engineer. Pedestrian push buttons shall be provided for all pedestrian signal heads/phases as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system shall be approved by IDOT prior to Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer’s recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. An equipment supplier shall be present and assist the contractor in setting up and maintaining the microwave vehicle sensor or 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.

(h) Uninterruptable Power Supply. All temporary traffic signal installations shall have Uninterruptable Power Supply (UPS). The UPS cabinet shall be mounted to the temporary traffic signal cabinet and shall be according to the applicable portions of

Section 862 of the Standard Specifications and as modified in 862.01TS UNITERRUPTABLE POWER SUPPLY, SPECIAL Special Provision.

(i) Signs. 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 assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost. Any intersection regulatory signs that are required for the temporary traffic signal shall be provided as shown on the plans or as directed by the Engineer. Relocation, removing, bagging and installing the regulatory signs for the various construction stages shall be provided as shown on the plans or as directed by the Engineer. If Illuminated Street Name Signs exist they shall be taken down and stored by the contractor and reflecting street name signs shall be installed on the temporary traffic signal installation.

(j) Energy Charges. The electrical utility energy charges for the operation of the temporary traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise charges shall be paid for under 109.05 of the Standard Specifications.

(k) Maintenance. Maintenance shall meet the requirements of the Standard Specifications and 850.01TS MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION Special Provisions. Maintenance of temporary signals and of the existing signals shall be included in the cost of the TEMPORARY TRAFFIC SIGNAL INSTALLATION pay 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 the Contract or any portion thereof. 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 request that the Resident Engineer contact DuPage County DOT (630) 407-6900 for an inspection of the installation(s).

(l) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, Special Provisions and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification. In addition all electric cable shall be aerially suspended, at a minimum height of 18 feet (5.5m) on temporary wood poles (Class 5 or better) of 45 feet (13.7 m) 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 as shown in the plans, or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system may be used in place of detector loops as approved by the Engineer.

(m) Temporary Portable Traffic Signal for Bridge Projects.

1. Unless otherwise directed by the Engineer, temporary portable traffic signals shall be restricted to use on roadways of less than 8000 ADT that have limited

access to electric utility service, shall not be installed on projects where the estimated need exceeds ten (10) weeks, and shall not be in operation during the period of November through March. The Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract if the bridge project or Engineer requires temporary traffic signals to remain in operation into any part of period of November through March. If, in the opinion of the Engineer, the reliability and safety of the temporary portable traffic signal is not similar to that of a temporary span wire traffic signal installation, the Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals at no cost to the contract.

2. The controller and LED signal displays shall meet the applicable Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION special provision.

3. Work shall be according to Article 701.18(b) of the Standard Specifications except as noted herein.

4. General.

    a. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of 12 days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.

    b. All signal heads located over the travel lane shall be mounted at a minimum height of 17 feet (5m) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 8 feet (2.5m) from the bottom of the signal back plate to the top of the adjacent travel lane surface.

    c. The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.

    d. As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with microwave sensors or other approved methods of vehicle detection and traffic actuation.

    e. All portable traffic signal units shall be interconnected using hardwire communication cable. Radio communication equipment may be used only with the approval of the Engineer. If radio communication is used, a site analysis shall be completed to ensure that there is no interference present that would affect the traffic signal operation. The radio equipment shall meet all applicable FCC requirements.

f. The temporary portable bridge traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV and other applicable portions of the currently adopted version of the Manual on Uniform Traffic Control Devices (MUTCD) and the Illinois MUTCD. The signal system shall be designed to continuously operate over an ambient temperature range between -30 ºF (-34 ºC) and 120 ºF (48 ºC). When not being utilized to inform and direct traffic, portable signals shall be treated as nonoperating equipment according to Article 701.11.

g. Basis of Payment. This work will be paid for according to Article 701.20(c).

Basis of Payment.

This work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION, the price of which shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in the Contract plans, microwave vehicle sensors, video vehicle detection system, any maintenance or adjustment to the microwave vehicle sensors/video vehicle detection system, the temporary wireless interconnect system, temporary fiber optic interconnect system, all material required, the installation and complete removal of the temporary traffic signal, and any changes required by the Engineer. Each intersection will be paid for separately.

TEMPORARY TRAFFIC SIGNAL TIMING
DuDOT Effective: April 19, 2016

Description.
This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition, as well as impact to existing traffic signal timings caused 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 (630) 407-6900 for a listing of approved Consultants.

The following tasks are associated with TEMPORARY TRAFFIC SIGNAL TIMING.

(a) Consultant shall attend temporary traffic signal inspection (turn-on) and/or detour meeting and conduct on-site implementation of the traffic signal timings.

(b) Consultant shall be responsible for making fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.

(c) Consultant shall provide monthly observation of traffic signal operations in the field.

(d) 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.

(e) Consultant shall make timing adjustments and prepare comment responses as directed by the County's Traffic Engineer.

(f) Return original timing plan once construction is complete.

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 and/or detour 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 and/or detour.

LED INTERNALLY ILLUMINATED STREET NAME SIGN
Effective: May 22, 2002
Revised: July 1, 2015
891.02TS

Description.
This work shall consist of furnishing and installing a LED internally illuminated street name sign.

Materials.
The illuminated street name sign shall be as follows.

(a) Description.
The LEDs shall be white in color. 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. White translucent Type ZZ reflective sheeting sign faces with the street name applied in transparent green shall be installed on the street sign acrylic panels which shall be affixed to the interior of the sign enclosure. Sheeting material shall be of one continuous piece. Paneling shall not be allowed. Hinged door(s) shall be provided 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^{o}C (-40 to +122^{o}F) for storage in the ambient temperature range of -40 to +75^{o}C (-40 to +167^{o}F).

(c) General Construction.
1. The LED components, power supply, and wiring harness shall be arranged as to allow for maintenance, up to and including the replacement of all three components. The LED Light Engine shall be mounted in the top and/or bottom of the sign 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 with the maximum sign dimensions of 30” in height, 96” in length, 10.75” in depth (including the drip edge) and shall not weight more than 110 pounds. All housing corners are continuous TIG (Tungsten Inert Gas) welded to provide a weatherproof seal.

2. The sign doors shall be continuous TIG welded along the two corners 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 stainless steel hinge. The sign shall also be fabricated in a way to ensure that no components fall out while a technician is opening or working inside the sign enclosure. The door shall be

held secure onto a 1” wide by 5/32” thick neoprene gasket by an appropriate number of 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 or acrylic. Sign legend shall be according to D1 Mast Arm Mounted Street Name Sign detail and MUTCD. The sign face legend background shall consist of translucent Type ZZ white reflective sheeting and transparent green film applied to the front of the sign face. The legend shall be framed by a white 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 powder coated black.

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

6. All wiring shall be secured by insulated wire compression nuts or barrier type terminal blocks.

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 shall provide a weather tight seal.

8. A photoelectric switch shall be mounted inside control cabinet to control lighting functions for day and night display. Each sign shall be individually fused.

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

(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^{o}C (+77^{o}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 120 Watts. The signs shall be installed such that they are not energized when traffic signals are powered by an alternate energy source such as a generator or uninterruptable power supply (UPS).

(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. 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.

Installation.
The sign shall be located on a steel traffic signal mast arm no further than 8-feet from the center of the pole to the center of the sign at a height of between 16 to 18-feet above traveled pavement. Mounting hardware shall be from an approved vendor, utilizing stainless steel components.

Basis of Payment.
This work will be paid for at the contract unit price each for LED INTERNALLY ILLUMINATED STREET NAME SIGN, of the length as specified in the contract plans which shall be payment in full for furnishing and installing the LED internally illuminated street name sign, complete with circuitry and mounting hardware including photo cell, circuit breaker, fusing, relay, connections and cabling as shown on the plans for proper operation and installation.

MODIFY EXISTING CONTROLLER CABINET
Effective: May 22, 2002
Revised: July 1, 2015
895.01TS

The work shall consist of modifying an existing controller cabinet as follows:

(a) Uninterruptable Power Supply (UPS). The addition of uninterruptable power supply (UPS) to an existing controller cabinet could require the relocation of the existing controller cabinet items to allow for the installation of the uninterruptable power supply (UPS) components

inside the existing controller cabinet as outlined under Sections 862 and 1074.04 of the Standard Specifications and the wiring of UPS alarms.

(b) Light Emitting Diode (LED) Signal Heads, Light Emitting Diode (LED) Optically Programmed Signal Heads and Light Emitting Diode (LED) Pedestrian Signal Heads. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(b)(2) of the Standard Specifications and the recommended load requirements of the light emitting diode (LED) signal heads that are being installed at the existing traffic signal. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.

(c) Light Emitting Diode (LED), Signal Head, Retrofit. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(b)(2) of the Standard Specifications and the recommended load requirements of light emitting diode (LED) traffic signal modules, pedestrian signal modules, and pedestrian countdown signal modules as specified in the plans. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.

(d) This item shall include the upgrade of all non-railroad controller software to the latest version available at the time of the signal TURN-ON.

Basis of Payment.

Modifying an existing controller cabinet will be paid for at the contract unit price per each for MODIFY EXISTING CONTROLLER CABINET. This shall include all material and labor required to complete the work as described above, the removal and disposal of all items removed from the controller cabinet, as directed by the Engineer. The equipment for the Uninterruptable Power Supply (UPS) and labor to install it in the existing controller cabinet shall be included in the pay item Uninterruptable Power Supply, Special or Uninterruptable Power Supply, Ground Mounted.

REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT
DuDOT Effective: April 19, 2016

Add the following to Article 895.05 of the Standard Specifications:

The traffic signal equipment which is to be removed and is to become the property of the Contractor shall be disposed of outside the right-of-way at the Contractor's expense.

All equipment to be returned to the State shall be delivered by the Contractor to the State's Traffic Signal Maintenance Contractor's main facility. The Contractor shall contact the State's Electrical Maintenance Contractor to schedule an appointment to deliver the equipment. No equipment will be accepted without a prior appointment. All equipment shall be delivered within 30 days of removing it from the traffic signal installation. The Contractor shall provide one hard copy and one electronic file of a list of equipment that is to remain the property of the State, including model and serial numbers, where applicable. The Contractor shall also provide a copy of the Contract plan or special provision showing the quantities and type of equipment. 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. If equipment is not returned according to these requirements, it will be rejected by the County's Electrical Maintenance Contractor. The Contractor shall be responsible for the condition of the traffic signal equipment from the time Contractor takes maintenance of the signal installation until the acceptance of a receipt drawn by the County's Electrical Maintenance Contractor indicating the items have been returned in good condition.

The Contractor shall safely store and arrange for pick up or delivery of all equipment to be returned to agencies other than the State. The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications at no cost to the contract.

MODIFY EXISTING TYPE "D" FOUNDATION
Effective: January 1, 2002
Modified: July 1, 2015
895.03TS

This item shall consist of the partial removal of an existing Type "D" Foundation at the location shown on the plans, or as directed by the Engineer. The existing foundation shall be removed to a depth of at least twelve (12) inches below finished grade. All concrete debris shall be disposed of outside the right-of-way. The existing conduit shall remain in place and shall be carefully protected. The new conduits from the double handhole shall be installed, if required, as shown on the plans.

The removal of the existing traffic signal controller and cabinet shall be included in this pay item, as well as the removing and reinstalling of the existing cable(s) from conduit.

Upon completion of the above work, holes for steel dowels of the size indicated shall be drilled in the remaining concrete where indicated on the drawings.

The adjacent area shall be excavated and forming with anchor bolts and new conduit stubs provided to provide a concrete foundation for a Type IV or Type V cabinet. The Contractor shall follow the recommendations of the vendor, subject to approval of the Engineer, in forming and constructing the foundation.

Provide a three (3) foot by four (4) foot wide Portland cement concrete apron sidewalk, five (5) inches thick, on the side of the access door to the controller to facilitate servicing the controller and cabinet.

Anchor bolts shall be new and shall meet all the requirements of Section 1006.09 of the Standard Specifications.

Basis of Payment.
This work shall be paid for at the contract unit price each for MODIFY EXISTING TYPE "D" FOUNDATION.

REBUILD EXISTING HANDHOLE
Effective: January 1, 2002
Revised: July 1, 2015
895.04TS

This item shall consist of rebuilding and bringing to grade a handhole at a location shown on the plans or as directed by the Engineer. The work shall consist of removing the handhole frame and cover and the walls of the handhole to a depth of eight (8) inches below the finished grade.

Upon completion of the above work, four (4) holes, four (4) inches in depth and one half (1/2) inch in diameter, shall be drilled into the remaining concrete; one hole centered on each of the four handhole walls. Four (4) #3 steel dowels, eight (8) inches in length, shall be furnished and shall be installed in the drilled holes with a masonry epoxy.

All concrete debris shall be disposed of outside the right-of-way.

The area adjacent to each side of the handhole shall be excavated to allow forming. All steel hooks, handhole frame, cover, and concrete shall be provided to construct a rebuilt handhole according to applicable portions of Section 814 of the Standard Specification and as modified in 814.01TS HANDHOLES Special Provision. The existing frame and cover shall be replaced if it was damaged during removal or as determined by the Engineer.

Basis of Payment.
This work shall be paid for at the contract unit price each for REBUILD EXISTING HANDHOLE, which price shall be payment in full for all labor, materials, and equipment necessary to complete the work described above and as indicated on the drawings.

VENDOR REPRESENTATION
DuDOT Effective: April 19, 2016

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, infra-red, illuminated signs, streetlights, push buttons, lighted crosswalks, uninterruptible 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.

RELOCATE VIDEO VEHICLE DETECTION SYSTEM
Effective: April 19, 2016

The Video Vehicle Detection System will initially be installed with the temporary traffic signal. This work shall consist of removing the Video Vehicle Detection System from the temporary traffic signal and installing it on the permanent traffic signal.

Basis of Payment
This work will be paid for at the contract unit price each per intersection for RELOCATE VIDEO VEHICLE DETECTION SYSTEM. The contract unit price shall include all equipment, labor, and materials necessary to complete this work as specified, including mounting hardware.

All cable and wire required to install the Video Vehicle Detection System on the permanent traffic signal shall be paid for separately.

VIDEO DETECTOR CABLE
Effective: April 19, 2016

This work shall consist of furnishing and installing the cable for the video detection units of the type, size and number of conductors specified. This work shall conform to Section 873 of the Standard Specifications and as noted below.

Aerial and duct, communications cable with 16 AWG solid bare copper twisted-pair conductors, a 0.005 inches corrugated overall copper tape shield and polyethylene insulation. Nominal outside diameter shall be 0.715 inches. The cable shall conform to the IMSA 20-2 polyethylene specifications and have the following pair color combinations:

Pair No.	Tip	Ring
1	White	Blue
2	White	Orange
3	White	Green
4	White	Brown
5	White	Slate
6	Red	Blue

Materials
Materials shall be according to Article 873.02 of the Standard Specifications and as noted above.

Installation
Installation shall be according to Article 873.03 of the Standard Specifications and as noted above.

Method of Measurement
Measurement of the cable shall be according to Article 873.04 of the Standard Specifications.

Basis of Payment
This work will be paid for at the contract unit price per foot for ELECTRIC CABLE IN CONDUIT, COMMUNICATION, NO. 16, 6 PAIR.

VIDEO VEHICLE DETECTION, 1 CAMERA
Effective: April 19, 2016

This work shall consist of furnishing and installing a camera for an intersection approach that monitors vehicles via processing of video images and provides detector outputs to a traffic controller.

Materials
The video detection system shall be an Autoscope Model SOLO PRO II or an Engineer-approved equivalent.

Basis of Payment

This work will be paid for at the contract unit price each for VIDEO VEHICLE DETECTION , 1 CAMERA which price shall include all equipment, labor, and materials necessary to complete this work as specified including mounting hardware.

INTERSECTION MONITOR MODULE
Effective: April 19, 2016

This item shall consist of furnishing and installing an Intersection Monitor (IM) Module or Intersection Monitor (IM) Data Key manufactured by the Econolite Corporation as a replacement or addition to an existing traffic signal controller. This item is necessary at isolated (non-interconnected) traffic signals in order to monitor the intersection and controller operations. The IM module is required in ASC/2 controllers and the IM Data Key is required in ASC/3 controllers.

Basis of Payment

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

TERMINATE FIBER IN CABINET
Effective: April 19, 2016

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. 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 incidental to 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 801.15(b) 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
Effective: April 19, 2016

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 incidental to 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 801.15(b) of the "Standard Specifications", to the satisfaction of the Engineer.

All optical fibers shall be spliced to provide continuous runs. Splices shall be allowed only 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.

STEEL COMBINATION MAST ARM ASSEMBLY AND POLE (SPECIAL)
Effective: April 19, 2016

Add the following to Article 1077.03 of the "Standard Specifications":

The poles for all mast arms and combination mast arms, up to and including forty (40) feet in length, shall be manufactured with an eighteen (18)-inch bolt circle at the foundation base plate. The poles for all mast arms and combination mast arms forty-two (42) feet long and longer shall be manufactured with a twenty-one (21)-inch bolt circle.

Ornamental bases for mast arm poles shall be either cast iron or cast aluminum. All mast arms, mast arm poles, luminaire arms, cast iron bases, and any exposed steel hardware shall be hot-dipped galvanized, and then painted black by the supplier/manufacturer. Cast aluminum bases shall also be painted black by the supplier/manufacturer.

All ornamental bases shall fit tightly around the poles, with little or no gap at the top of the ornamental base. Two-piece ornamental bases shall fit together tightly, with little or no gap between the two pieces. All bases shall fit securely on top of the foundation, and shall not easily move or wobble.

Pedestrian pushbutton stations shall be mounted to ornamental mast arm bases 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. The pushbutton station shall be plumb. Spacers made of 3/4-inch aluminum conduit shall be installed behind the station.

Luminaire arms shall be steel, and a minimum fifteen (15) feet in length.

Luminaires shall be "cobra head" style, painted black by the supplier/manufacturer, minimum mounting height shall be forty (40) 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, Valmont, Beacon or approved equal, according to the following:

- Round, tapered, 16-sharp fluted pole.
- Round, tapered, smooth, standard-curved, flange-connected, traffic signal mast arm
- Hamilton Series (6400D) ornamental base (Sternberg).
- MainStreet Series (200SJ) ornamental base (Beacon).

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TRAFFIC SIGNAL POST (SPECIAL)

Effective: April 19, 2016

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 ornamental bases for Traffic Signal Post (Special) shall be cast aluminum.

All Traffic Signal Posts (Special) and associated ornamental bases shall be assembled and painted black at the factory. All exposed steel hardware shall be hot-dipped galvanized, and then painted black.

Pedestrian pushbutton stations shall be mounted to ornamental 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. Do not use self-tapping screws. The pushbutton station shall be plumb. Spacers made of 3/4-inch aluminum conduit shall be installed behind the station.

All ornamental bases shall fit tightly around the poles, with little or no gap at the top of the ornamental base. Two-piece ornamental bases shall fit together tightly, with little or no gap between the two pieces. All bases shall fit securely on top of the foundation, and shall not easily move or wobble.

All Traffic Signal Posts (Special) and associated ornamental bases shall be manufactured and/or supplied by Sternberg Vintage Lighting, Valmont, Beacon, 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.
- Hamilton Series (5400D) ornamental base, approximately forty-three (43) inches tall. (Sternberg)

- MainStreet Series (100SJ) ornamental base, approximately forty-three (43) inches tall. (Beacon)

ILLUMINATED SIGN, LED
Effective: April 19, 2016

This work shall consist of furnishing and installing an illuminated sign with light emitting diodes.

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.

The LED blank out sign shall provide the correct symbol and color for “NO LEFT TURN" OR “NO RIGHT TURN" indicated in accordance with the requirements of the "Manual on Uniform Traffic Control Devices". The message shall be formed by rows of LEDs.

The message shall be clearly legible and highly visible, under any lighting conditions, within a 15-degree cone centered about the optic axis. The sign face shall be 24 inches by 24 inches. The sign face shall be completely illegible when not illuminated. No symbol shall be seen under any ambient light condition when not illuminated.

All LEDs shall be T-1 ¾ and have an expected lamplife of 100,000 hours. Operating wavelengths will be Red-626nm, Amber-590nm, and Bluish/Green-505nm. Transformers shall be rated for the line voltage with Class A insulation and weatherproofing. The sign shall be designed for operation over a range of temperatures from –35F to +165 F (-37C to +75C).

The LED module shall include the message plate, high intensity LEDs and LED drive electronics. Door panels shall be flat black and electrical connections shall be made via barrier-type terminal strip. All fasteners and hardware shall be corrosion resistant stainless steel.

The housing shall be constructed of extruded aluminum. All corners and seams shall be heli-arc welded to provide a weatherproof seal around the entire case. Hinges shall be continuous full-length stainless steel. Signs shall have stainless steel hardware and provide tool free access to the interior of the sign. Doors shall be 0.125-inch thick extruded aluminum with a 3/16-inch x 1-inch neoprene gasket and sun hood. The sign face shall have a polycarbonate, matte clear, lexan face plate. Drainage shall be provided by four drain holes at the corners of the housing. The finish on the sign housing shall include two coats of exterior enamel applied after the surface is acid-etched and primed with zinc-chromate primer.

Mounting hardware shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and brackets specified herein.

Basis of Payment
This work shall be paid for at the unit price each for ILLUMINATED SIGN, LED.

REMOTE-CONTROLLED VIDEO SYSTEM
Effective: April 19, 2016

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 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

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
Effective: April 19, 2016

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 exposed wires shall be trained into a drip loop and protected with black plastic spiral cable wrap.

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
Effective: April 19, 2016

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 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, 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), high-speed Internet modem(s), and related connection cables.

High-Speed Internet Modem

The high-speed Internet modem shall be provided by the County or the Internet Provider.

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

LAYER II (DATA LINK) SWITCH
Effective: April 19, 2016

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.

If the layer II switch is interconnected to other signalized intersections that deploy video detection without the use of switches, this pay item shall then also include all necessary video multiplexers, video and data transmitters, and all necessary connections for proper video/data communications.

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
Effective: April 19, 2016

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 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.

If the layer III switch is interconnected to other signalized intersections that deploy video detection without the use of switches, this pay item shall then also include all necessary video multiplexers, video and data transmitters, and all necessary connections for proper video/data communications.

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.

VIDEO ENCODER
Effective: April 19, 2016

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-40 MPEG-4 video encoder/decoder, or an Optelecom Model C-44 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 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 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.

LAYER III FIBER OPTIC TRANSCEIVER MODULE, SFP TYPE, LONG DISTANCE
Effective: April 19, 2016

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.

LAYER III FIBER OPTIC TRANSCEIVER MODULE, SFP TYPE, EXTRA LONG DISTANCE
Effective: April 19, 2016

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.

LAYER III FIBER OPTIC TRANSCEIVER MODULE, GBIC TYPE, LONG DISTANCE
Effective: April 19, 2016

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.

MEDIA CONVERTER
Effective: April 19, 2016

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

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 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 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
Effective: April 19, 2016

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 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.

VIDEO COMMUNICATIONS CABINET
Effective: April 19, 2016

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

The Video 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 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 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 cabinet shall also be equipped with a CCTV Power Distribution Assembly 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.
- A power supply with input voltage AC100-120/220-240V (switchable) 47-63 Hz, output voltage 24VDC (+5%, -1%), overload protection, and minimum operating temperature range -10° to +60°C. The power supply must be compatible with Cisco Catalyst 2955 Series switch.

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 VIDEO 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.

WIRELESS SYSTEM NODE
Effective: April 19, 2016

This specification sets forth the minimum requirements for a new node on the wireless portion of the County's PASSAGE network. This item includes the radio transceiver, directional antenna, power injector, and associated cables / wiring.
The radio transceiver shall be a Cisco Aironet 1520 Series Lightweight Outdoor Access Point (Model AIR-LAP1522AG-A-K9) or approved equivalent. The power injector shall be a Cisco

Aironet Model AIR-PWRINJ1500-2 or approved equivalent. The antenna shall be a Huber + Suhner Planar Antenna SPA 5600/9/23/0/V or approved equivalent.

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). The power injector shall be installed inside the traffic signal cabinet.

Basis of Payment

This item will be paid for at the contract unit price each for WIRELESS SYSTEM NODE, which price shall be payment in full for furnishing and installing the radio transceiver, power injector, antenna, and all associated connectors, cables, hardware, and other peripheral equipment, and placing it in operation to the satisfaction of the Engineer.

RELOCATE EXISTING VIDEO DETECTION SYSTEM (COMPLETE INTERSECTION)
Effective: April 19, 2016

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.

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
Effective: April 19, 2016

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.

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
Effective: April 19, 2016

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.

ELECTRIC CABLE IN CONDUIT, COAXIAL
Effective: April 19, 2016

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.

OUTDOOR RATED NETWORK CABLE
Effective: April 19, 2016

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 6e cable, meeting the TIA/EIA 568-B.2 telecommunication standards. The cable shall be composed of 4 pairs of 24AWG solid bare copper and shall be flooded with a gel or grease compound to prevent moisture in the cable. The outer jacket shall be made of Polyethylene (PE) that is ultraviolet (UV) resistant and abrasion resistant. 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 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 to the OUTDOOR RATED NETWORK CABLE shall be incidental to this pay item.

MAST ARM, STREET LIGHTING, 15 FT
Effective: April 19, 2016

This work shall consist of furnishing and installing a 15' street light mast arm and all required hardware. The mast arm will be mounted on the existing combination traffic signal mast arm poles at locations indicated on the plans. The street light mast arm shall match the existing arms on the combination traffic signal mast arm poles and as provided in the details. Catalog cuts must be supplied to and approved by the Engineer prior to ordering.

The street light mast arm shall not be installed without the LED luminaire. The LED luminaire and associated wiring shall be paid for separately. The mounting height shall be as shown in the plans. In addition to this special provision and the details included in the plans, the work shall be done in accordance with Sections 830 and 877 of the Standard Specifications.

Basis of Payment: This work shall be paid for at the contract unit price each for MAST ARM, STREET LIGHTING, 15 FT which shall include all labor, equipment, and materials required to complete the work as specified herein. The cost to field drill the holes to install the mast arms shall be included and not be paid for separately.

LUMINAIRE, LED, HORIZONTAL MOUNT, SPECIAL
DuDOT Effective: April 19, 2016

This item shall consist of furnishing and installing a LED luminaire and all required hardware as specified herein and as shown on the plans. Catalog cuts must be supplied to and approved by the Engineer prior to ordering. The mounting height of the luminaire shall be as shown in the plans. In addition to this special provision and the details included in the plans, the work shall be done in accordance with Section 821 of the Standard Specifications.

Luminaire: The luminaire shall be comprised of cast aluminum and shall be American Electric Lighting, Philips, or Leotek. The luminaire shall be prime painted and then finish painted dark bronze to match the street light pole. The luminaire shall have a light distribution as specified in the plans.

Add the following table(s) to Article 1067 of the Standard Specifications:

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE

GIVEN CONDITIONS		
ROADWAY DATA	Sidewalk Width	5 (ft) to 12 (ft)
	Number of Lanes	Varies
	I.E.S. Surface Classification	R3
	Q-Zero Value	0.10
LIGHT POLE DATA	Mounting Height	47.5 (ft)
	Mast Arm Length	15 (ft)
	Pole Set-Back From Back of Curb	3 (ft) & Varies
LUMINAIRE DATA	Lamp Type	LED
	Lamp Lumens	25,000
	I.E.S. Vertical Distribution	Medium
	I.E.S. Control Of Distribution	Cutoff
	I.E.S. Lateral Distribution	Type III
	Total Light Loss Factor	0.75
LAYOUT DATA	Spacing	Varies
	Configuration	Opposite or Centered in median
	Luminaire Overhang over edge of pavement	Varies

NOTE: Variations from the above specified I.E.S. distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

PERFORMANCE REQUIREMENTS

NOTE: These performance requirements shall be the minimum acceptable standards of photometric

performance for the luminaire, based on the given conditions listed above.

ILLUMINATION	Ave. Horizontal Illumination, E_{AVE}	N/A
	Uniformity Ratio, E_{AVE}/E_{MIN}	N/A
LUMINANCE	Average Luminance, L_{AVE}	0.9
	Uniformity Ratio, L_{AVE}/L_{MIN}	3.0
	Uniformity Ratio, L_{MAX}/L_{MIN}	5.0
	Veiling Luminance Ratio, L_V/L_{AVE}	0.3

Lamps: The lamp shall be LED and shall have a color temperature of 4000K. The LED lamp shall have a life expectancy minimum of 70,000 hours. The LEDs and LED driver shall operate over a range of -40 degrees Fahrenheit to +122 degrees Fahrenheit.

Shipment: The luminaires shall be carefully inspected at the factory prior to shipment to assure that the luminaires are complete and free of defects.

Installation: The contractor shall install the luminaires according to the plans and as recommended by the manufacturer.

Certification and Guarantee: The submittal information shall include a written certification of compliance with the contract requirements from the manufacturer. The certification shall identify the project location, section number, and contract number as applicable and shall identify specifically the equipment covered by the certification. The certification shall be made on the manufacturer's corporate stationary and dated and signed by a responsible officer of the company with the signee's title listed.

Basis of Payment: This work will be paid for at the contract unit price per each for LUMINAIRE, LED, HORIZONTAL MOUNT, SPECIAL which shall include all labor, materials, and equipment to complete the installation as described herein.

IDOT District 1 Traffic Signal Special Provisions

TRAFFIC SIGNAL SPECIFICATIONS
Effective: May 22, 2002
Revised: January 1, 2012

These Traffic Signal Special Provisions and the "District One Standard Traffic Signal Design Details" supplement the requirements of the State of Illinois "Standard Specifications for Road and Bridge Construction." The intent of these Special Provisions is to prescribe the materials and construction methods commonly used for traffic signal installations. All material furnished shall be new. The locations and the details of all installations shall be as indicated on the Plans or as directed by the Engineer. Traffic signal construction and maintenance work shall be performed by personnel holding IMSA Traffic Signal Technician Level II certification. The work to be done under this contract consists of furnishing and installing all traffic signal work as specified in the Plans and as specified herein in a manner acceptable and approved by the Engineer.

SECTION 720 SIGNING

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 the District Sign Shops. Signfix Aluminum Channel Framing System is currently recommended, but other brands of mounting hardware are acceptable based upon the Department's approval.

DIVISION 800 ELECTRICAL

SUBMITTALS.

Revise Article 801.05 of the Standard Specifications to read:

All material approval requests shall be submitted in accordance with the District's current Electrical Product Data and Documentation Submittal Guidelines. General requirements include:

1. Material approval requests shall be made at the preconstruction meeting, including major traffic signal items listed in the table in Article 801.05. Material or equipment which is similar or identical shall be the product of the same manufacturer, unless necessary for system continuity. Traffic signal materials and equipment shall bear the U.L. label whenever such labeling is available.
2. Product data and shop drawings shall be assembled by pay item and separated from of other pay item submittals. Only the top sheet of each pay item submittal will be stamped by the Department with the review status, except shop drawings

for mast arm pole assemblies and the like will be stamped with the review status on each sheet.

3. Partial or incomplete submittals will be returned without review.
4. Certain non-standard mast arm poles and structures will require additional review from IDOT's Central Office. Examples include ornamental/decorative and non-standard length mast arm pole assemblies. The Contractor shall account for the additional review time in his schedule.
5. 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.
6. 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.
7. 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-Noted', 'Disapproved', or 'Incomplete'. 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 Department's approval thereof. The Contractor must still be in full compliance with contract and specification requirements.
8. All submitted items reviewed and marked 'APPROVED AS NOTED', 'DISAPPROVED', or 'INCOMPLETE' 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.
9. 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.

INSPECTION OF ELECTRICAL SYSTEMS.

Add the following to Article 801.10 of the Standard Specifications:

(c) All cabinets including temporary traffic signal cabinets shall be assembled by an approved equipment supplier in District One. The Department reserves the right to request any controller and cabinet to be tested at the equipment supplier facilities prior to field installation, at no extra cost to this contract.

MAINTENANCE AND RESPONSIBILITY.

Revise Article 801.11 of the Standard Specifications to read:

a. Existing traffic signal installations and/or any electrical facilities at all or various locations 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 they are 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 item "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," shall become the full responsibility of the Contractor. Automatic Traffic Enforcement equipment is not owned by the State and the Contractor shall not be responsible for maintaining it during construction. The Contractor shall supply the Engineer, Area Traffic Signal Maintenance and Operations Engineer, IDOT ComCenter and the Department's Electrical Maintenance Contractor with two 24-hour emergency contact names and telephone numbers.

b. When the project has a pay item for "Maintenance of Existing Traffic Signal Installation," "Temporary Traffic Signal Installation(s)" and/or "Maintenance of Existing Flashing Beacon Installation," the Contractor must notify both the Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department's Electrical Maintenance Contractor, of their intent to begin any physical construction work on the Contract or any portion thereof. This notification must be made a minimum of seven (7) working days prior to the start of construction to allow sufficient time for inspection of the existing traffic signal installation(s) and transfer of maintenance to the Contractor. If work is started prior to an inspection, maintenance of the traffic signal installation(s) will be transferred to the Contractor without an inspection. The Contractor will 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 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.

c. Contracts such as pavement grinding or patching which result in the destruction of traffic signal loops do not require maintenance transfer, but 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 Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 and the Department's Electrical Maintenance Contractor, at which time arrangements will be made to adjust the traffic controller timing to compensate for the absence of detection. Damaged Automatic Traffic Enforcement equipment, including cameras, detectors, or other peripheral equipment, shall be replaced by others, per Permit agreement, at no cost to the contract. See additional requirements in these specifications under Inductive Loop Detector.

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 essential down time. Any shutdown of the traffic signal installation, which exceeds fifteen (15) minutes, must have prior approval of the Engineer. Approval to shutdown the traffic signal installation will only be granted during the period extending from 10:00 a.m. to

3:00 p.m. on weekdays. Shutdowns shall not be allowed during inclement weather 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 Department, the Department's Electrical Maintenance Contractor or the public, shall be investigated and repairs begun within one hour. Failure to provide this service will result in liquidated damages of $500 per day per occurrence. In addition, the Department reserves the right to assign any work not completed within this timeframe to the Electrical Maintenance Contractor. All costs associated to repair this uncompleted work shall be the responsibility of the Contractor. Failure to pay these costs to the Electrical 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 District's Electrical Maintenance Contractor may inspect any signalizing device on the Department's highway system at any time without notification.

f. 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.

DAMAGE TO TRAFFIC SIGNAL SYSTEM.

Add the following to Article 801.12(b) of the Standard Specifications to read:

Any traffic signal control equipment damaged or not operating properly from any cause whatsoever shall be replaced with new equipment meeting current District One traffic signal specifications and provided by the Contractor at no additional cost to the Contract and/or owner of the traffic signal system, all as approved by the Engineer. Final 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 the intent to have all electric work completed and equipment field tested by the vendor prior to the Department's "turn-on" field inspection. If in the event the Engineer determines

work is not complete and 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 maintenance of the traffic signals will not be accepted until all punch list work is corrected and re-inspected.

When the road is open to traffic, except as otherwise provided in Section 850 of the Standard Specifications, 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 Area Traffic Signal Maintenance and Operations Engineer at (847) 705-4424 a minimum of seven (7) working days prior to the time of the requested inspection. The Department will not grant a field inspection until notification is provided from the Contractor that the equipment has been field tested and the intersection is operating according to Contract requirements. The Department's facsimile number is (847) 705-4089. The Contractor must invite local fire department personnel to the turn-on when Emergency Vehicle Preemption (EVP) is included in the project. When the contract includes the item RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM, OPTIMIZE TRAFFIC SIGNAL SYSTEM, or TEMPORARY TRAFFIC SIGNAL TIMINGS, the Contractor must notify the SCAT Consultant of the turn-on/detour implementation schedule, as well as stage changes and phase changes during construction.

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. The Contractor shall be responsible to provide a police officer to direct traffic at the time of testing.

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 and all work is completed in accordance with the Contract and to the satisfaction of the Engineer, the 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 assume the maintenance upon successful completion of this inspection.

The District requires the following from the Contractor at traffic signal turn-ons.

1. One set of signal plans of record with field revisions marked in red ink.
2. Written notification from the Contractor and the equipment vendor of satisfactory field testing.
3. A knowledgeable representative of the controller equipment supplier shall be required at the traffic signal turn-on. The representative shall be knowledgeable of the cabinet design and controller functions.
4. A copy of the approved material letter.
5. One (1) copy of the operation and service manuals of the signal controller and associated control equipment.
6. Five (5) copies 11” x 17" (280 mm X 430 mm) of the cabinet wiring diagrams.
7. The controller manufacturer shall supply a printed form, not to exceed 11” x 17” (280 mm X 430 mm) for recording the traffic signal controller’s timings; backup timings; coordination splits, offsets, and cycles; TBC Time of Day, Week and Year Programs; Traffic Responsive Program, Detector Phase Assignment, Type and Detector Switching; and any other functions programmable from the keyboard. The form shall include a location, date, manufacturer’s name, controller model and software version. The form shall be approved by the

Engineer and a minimum of three (3) copies must be furnished at each turn-on. The manufacturer must provide all programming information used within the controller at the time of turn-on.

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

Acceptance of the traffic signal equipment by the Department shall be based upon inspection results at the traffic signal "turn on." If approved, traffic signal acceptance shall be verbal at the "turn on" inspection followed by written correspondence from the Engineer. The Contractor shall be responsible for all traffic signal equipment and associated maintenance thereof until Departmental acceptance is granted.

All equipment and/or parts to keep the traffic signal installation operating shall be furnished by the Contractor. No spare traffic signal equipment is available from the Department.

All punch list work shall be completed within two (2) weeks after the final inspection. The Contractor shall notify the Electrical Maintenance Contractor to inspect all punch list work. Failure to meet these time constraints shall result in liquidated damage charges of $500 per month per incident.

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 shall be subject to removal and disposal at the Contractor's expense.

RECORD DRAWINGS

The requirements listed for Electrical Installation shall apply for Traffic Signal Installations in Article 801.16. Revise the 2nd paragraph of Article 801.16 of the Standard Specifications to read:

a. "When the work is complete, and seven days before the request for a final inspection, the full-size set of contract drawings. Stamped "RECORD DRAWINGS", shall be submitted to the Engineer for review and approval and shall be stamped with the date and the signature of the Contractor's supervising Engineer or electrician. The record drawings shall be submitted in PDF format on CDROM as well as hardcopy for review and approval.

b. In addition to the record drawings, copies of the final catalog cuts which have been Approved or Approved as Noted shall be submitted in PDF format along with the record drawings. The PDF files shall clearly indicate the pay item either by filename or PDF Table of Contents referencing the respective pay item number for multi-item PDF files. Specific part or model numbers of items which have been selected shall be clearly visible."

c. Additional requirements are listed in the District's Electrical Product Data and Documentation Guidelines.

Add the following to Article 801.16 of the Standard Specifications:

"In addition to the specified record drawings, the Contactor shall record GPS coordinates of the following traffic signal components being installed, modified or being affected in other ways by this contract:

- All Mast Arm Poles and Posts
- Handholes
- Conduit roadway crossings
- Controller Cabinets
- Communication Cabinets
- Electric Service Disconnect locations
- CCTV Camera installations
- Fiber Optic Splice Locations

Datum to be used shall be North American 1983.

Data shall be provided electronically and in print form. The electronic format shall be compatible with MS Excel. Latitude and Longitude shall be in decimal degrees with a minimum of 6 decimal places. Each coordinate shall have the following information:

1. Description of item
2. Designation or approximate station if the item is undesignated
3. Latitude
4. Longitude

Examples:

Description	**Designation**	**Latitude**	**Longitude**
Mast Arm Pole Assembly (dual, combo, etc)	MP (SW, NW, SE or NE corner)	41.580493	-87.793378
FO mainline splice handhole	HHL-ST31	41.558532	-87.792571
Handhole	HH	41.765532	-87.543571
Electric Service	Elec Srv	41.602248	-87.794053
Conduit crossing	SB IL83 to EB I290 ramp SIDE A	41.584593	-87.793378
PTZ Camera	PTZ	41.584600	-87.793432
Signal Post	Post	41.558532	-87.792571
Controller Cabinet	CC	41.651848	-87.762053
Master Controller Cabinet	MCC	41.580493	-87.793378
Communication Cabinet	ComC	41.558532	-87.789771
Fiber splice connection	Toll Plaza34	41.606928	-87.794053

Prior to the collection of data, the contractor shall provide a sample data collection of at least six data points of known locations to be reviewed and verified by the Engineer to be accurate within 100 feet. Upon verification, data collection can begin. Data collection can be made as construction progresses, or can be collected after all items are installed. If the data is unacceptable the contractor shall make corrections to the data collection equipment and or process and submit the data for review and approval as specified.

Accuracy. Data collected is to be mapping grade. A handheld mapping grade GPS device shall be used for the data collection. The receiver shall support differential correction and data shall have a minimum 5 meter accuracy after post processing.

GPS receivers integrated into cellular communication devices, recreational and automotive GPS devices are not acceptable.

The GPS shall be the product of an established major GPS manufacturer having been in the business for a minimum of 6 years."

Delete the last sentence of the 3rd paragraph of Article 801.16.

LOCATING UNDERGROUND FACILITIES.

Revise Section 803 to the Standard Specifications to read:

If this Contract requires the services of an Electrical Contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT electrical facilities prior to performing any work. If this Contract does not require the services of an Electrical Contractor, the Contractor may request one free locate for existing IDOT electrical facilities from the District One Electrical Maintenance Contractor prior to the start of any work. Additional requests may be at the expense of the Contractor. The location of underground traffic facilities does not relieve the Contractor of their responsibility to repair any facilities damaged during construction at their expense.

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, locally owned equipment, and leased enforcement camera system facilities, the local Counties or Municipalities may need to be contacted: in the City of Chicago contact Digger at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

RESTORATION OF WORK AREA.

Add the following article to Section 801 of the Standard Specifications:

801.17 Restoration of work area. Restoration of the traffic signal work area shall be included in the related pay items such as foundation, conduit, handhole, trench and backfill, underground raceways, etc. All roadway surfaces such as shoulders, medians, sidewalks, pavement, etc. shall be replaced in kind. All damage to mowed lawns shall be replaced with an approved sod, and all damage to unmowed fields shall be seeded. All brick pavers disturbed in the work area shall be restored to their original configuration as directed by the Engineer. All damaged brick pavers shall be replaced with a comparable material approved by the Engineer. Restoration of the work area shall be included in the contract without any extra compensation allowed to the Contractor.

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 "District One 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 and Area Traffic Signal Maintenance and Operations Engineer. The service agreement and sketch shall be submitted for signature to the IDOT's Traffic Operations Programs Engineer.

Materials.

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

b. Enclosures.

1. Pole Mounted Cabinet. The cabinet shall be UL 50, NEMA Type 4X, unfinished single door design, fabricated from minimum 0.080-inch (2.03 mm) thick Type 5052 H-32 aluminum. Seams shall be continuous welded and ground smooth. 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. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 14-inches (350 mm) high, 9-inches (225 mm) wide and 8-inches (200 mm) in depth 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 UL 50, NEMA Type 3R unfinished single door design with back panel. The cabinet shall be fabricated from Type 5052 H-32 aluminum with the frame and door 0.125-inch (3.175 mm) thick, the top 0.250-inch (6.350 mm) thick and the bottom 0.500-inch (12.70 mm) thick. Seams shall be continuous welded and ground smooth. 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 (1.91 mm) thick hinge bolted to the cabinet with

stainless steel carriage bolts and nylocks nuts. The locking mechanism shall be slam-latch type with a keyhole cover. The cabinet shall be sized to adequately house all required components with extra space for arrangement and termination of wiring. A minimum size of 40-inches (1000 mm) high, 16-inches (400 mm) wide and 15-inches (375 mm) in depth 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 circuit breakers 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 marketing representative 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 (3.0m) in length, and 3/4 inch (20mm) 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.

Basis of Payment.
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 CONCRETE FOUNDATION, TYPE A, which includes the ground rod, shall be paid for separately. SERVICE INSTALLATION, POLE MOUNTED shall include the 3/4 inch (20mm) grounding conduit, ground rod, and pole mount assembly. Any charges 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 Traffic Signal detail plan sheets for additional information.

The grounding electrode system shall include a ground rod installed with each traffic signal controller concrete foundation and all mast arm and post concrete foundations. An additional ground rod will be required at locations were measured resistance exceeds 25 ohms. Ground rods are included in the applicable concrete foundation or service installation pay item and will not be paid for separately.

Testing shall be according to Article 801.13 (a) (4) and (5).

(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 801.04 of the Standard Specifications.

1. Equipment grounding conductors shall be bonded to the grounded conductor (neutral conductor) only at the Electric Service Installation. The equipment grounding conductor is paid for separately and shall be continuous. The Earth shall not be used as the equipment grounding conductor.

2. Equipment grounding conductors shall be bonded, using a Listed grounding connector, to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pull boxes,

handhole frames and covers, conduits, and other metallic enclosures throughout the traffic signal wiring system, except where noted herein. Bonding shall be made with a splice and pigtail connection, using a sized compression type copper sleeve, sealant tape, and heat-shrinkable cap. A Listed electrical joint compound shall be applied to all conductors' terminations, connector threads and contact points. Conduit grounding bushings shall be installed at all conduit terminations.

3. All metallic and non-metallic raceways containing traffic signal circuit runs shall have a continuous equipment grounding conductor, except 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.

4. Individual conductor splices in handholes shall be soldered and sealed with heat shrink. When necessary to maintain effective equipment grounding, a full cable heat shrink shall be provided over individual conductor heat shrinks.

(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, listed pressure connectors, listed clamps or other approved listed means.

GROUNDING EXISTING HANDHOLE FRAME AND COVER.

Description.

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 "District One Standard Traffic Signal Design Details," and applicable portions of the Standard Specifications and these 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.

The grounding cable shall be paid for separately.

Method of Measurement.

Units measured for payment will be counted on a per handhole basis, regardless of the type of handhole and its location.

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 the handhole complete.

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 for loop detection shall be included in the contract and not paid for separately.

HANDHOLES.

Add the following to Section 814 of the Standard Specifications:

All handholes shall be concrete, poured in place, with inside dimensions of 21-1/2 inches (549mm) minimum. Frames and lid openings shall match this dimension. The cover of the handhole frame shall be labeled “Traffic Signals" with legible raised letters.

For grounding purposes the handhole frame shall have provisions for a 7/16 inch (15.875mm) diameter stainless bolt cast into the frame. The covers shall have a stainless steel threaded stint extended from the eye hook assembly for the purpose of attaching the grounding conductor to the handhole cover.

The minimum wall thickness for heavy duty hand holes shall be 12 inches (300mm).

All conduits shall enter the handhole at a depth of 30 inches (760mm) except for the conduits for detector loops when the handhole is less than 5 feet (1.52 m) from the detector loop. All conduit ends should be sealed with a waterproof sealant to prevent the entrance of contaminants into the handhole.

Steel cable hooks shall be coated with hot-dipped galvanization in accordance with AASHTO Specification M111. Hooks shall be a minimum of 1/2 inch (12.7 mm) diameter with two 90 degree bends and extend into the handhole at least 6 inches (150 mm). Hooks shall be placed a minimum of 12 inches (300 mm) below the lid or lower if additional space is required.

GROUNDING CABLE.

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

Add the following to Article 817.02 (b) of the Standard Specifications:

Unless otherwise noted on the Plans, traffic signal grounding conductor shall be one conductor, #6 gauge copper, with a green color coded XLP jacket.

The traffic signal grounding conductor shall be bonded, using a Listed grounding connector (Burndy type KC/K2C, as applicable, or approved equal), to all proposed and existing traffic signal mast arm poles and traffic/pedestrian signal posts, including push button posts. The grounding conductor shall be bonded to all proposed 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. The grounding conductor shall be bonded to conduit terminations using rated grounding bushings. 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.
Grounding cable shall be measured in place for payment in foot (meter). Payment shall be at the contract unit price for ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6, 1C, which price includes all associated labor and material including grounding clamps, splicing, exothermic welds, grounding connectors, conduit grounding bushings, and other hardware.

RAILROAD INTERCONNECT CABLE.

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

Add to Article 873.02 of the Standard Specifications:

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

Add the following to Article 873.05 of the Standard Specifications:

Basis of Payment.
This work shall be paid for at the contract unit price per foot (meter) 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.

FIBER OPTIC TRACER CABLE.

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

Add the following to Article 817.03 of the Standard Specifications:

In order to trace the fiber optic cable after installation, the tracer cable shall be installed in the same conduit as the fiber optic cable in locations shown on the plans. The tracer cable shall be continuous, extended into the controller cabinet and terminated on a barrier type terminal strip mounted on the side wall of the controller cabinet. The barrier type terminal strip and tracer cable shall be clearly marked and identified. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable will be allowed to be spliced at handholes only. The tracer cable splice shall use a Western Union Splice soldered with resin core flux and shall be soldered using a soldering iron. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. All exposed surfaces of the solder shall be smooth. The splice shall be covered with a black shrink tube meeting UL 224 guidelines, Type V and rated 600v, minimum length 4 inches (100 mm) and with a minimum 1 inch (25 mm) coverage over the XLP insulation, underwater grade.

Add the following to Article 817.05 of the Standard Specifications:

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

MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION.

Revise Articles 850.02 and 850.03 of the Standard Specifications to read:

Procedure.
The energy charges for the operation of the traffic signal installation shall be paid for by others. 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 with IMSA Level II certification on staff to provide signal maintenance.

This item shall include maintenance of all traffic signal equipment at the intersection, including emergency vehicle pre-emption equipment, master controllers, uninterruptible power supply (UPS and batteries), telephone service installations, communication cables,

conduits to adjacent intersections, and other traffic signal equipment, but shall not include Automatic Traffic Enforcement equipment, such as Red Light Enforcement cameras, detectors, or peripheral equipment, not owned by the State.

Maintenance.

The maintenance shall be according to MAINTENANCE AND RESPONSIBILITY in Division 800 of these specifications and the following:.

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 emergency vehicle pre-emption equipment. 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 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 or otherwise removed from normal operation, 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 stop signs (R1-1-36) at each approach of the intersection as a temporary means of regulating traffic. When the signals operate in flash, the Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations 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 stop signs which may be damaged or stolen.

The Contractor shall provide the Engineer with a 24 hour telephone number for the maintenance of the traffic signal installation and for emergency calls by the Engineer.

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

The Contractor shall respond to all emergency calls from the Department 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 contract. 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 State's Electrical Maintenance Contractor perform the maintenance work required. The State's Electrical 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 Electrical Maintenance Contractor to make reviews of the Existing Traffic Signal Installation that has been transferred to the Contractor for Maintenance.

TRAFFIC ACTUATED CONTROLLER.

Add the following to Article 857.02 of the Standard Specifications:

Controllers shall be NTCIP compliant NEMA TS2 Type 1, Econolite ASC/3S-1000 or Eagle/Siemens M50 unless specified otherwise on the plans or elsewhere on these specifications. Only controllers supplied by one of the District One approved closed loop equipment manufacturers will be allowed. The controller shall be the most recent model and software version supplied by the manufacturer at the time of the approval and include the standard data key. The traffic signal controller shall provide features to inhibit simultaneous display of a circular yellow ball and a yellow arrow display. Individual load switches shall be provided for each vehicle, pedestrian, and right turn over lap phase. The controller shall prevent phases from being skipped during program changes and after all preemption events.

Add the following to Article 857.03 of the Standard Specifications:

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET as called for on the traffic signal installation plans. If the traffic signal installation is part of a traffic signal system, a telephone line is usually not required, unless a telephone line is called for on the traffic signal plans. The Contractor shall follow the requirements for the telephone service installation as contained in the current District One Traffic Signal Special Provisions under Master Controller.

MASTER CONTROLLER.

Revise Articles 860.02 - Materials and 860.03 - Installation of the Standard Specifications to read:

Only controllers supplied by one of the District approved closed loop equipment manufacturers will be allowed. Only NEMA TS 2 Type 1 Eagle/Siemens and Econolite closed loop systems shall be supplied. The latest model and software version of master controller shall be supplied.

Functional requirements in addition to those in Section 863 of the Standard Specifications include:

The system commands shall consist of, as a minimum, six (6) cycle lengths, five (5) offsets, three (3) splits, and four (4) special functions. The system commands shall also include commands for free or coordinated operation.

Traffic Responsive operation shall consist of the real time acquisition of system detector data, data validation, and the scaling of acquired volumes and occupancies in a deterministic fashion so as to cause the selection and implementation of the most suitable traffic plan.

Upon request by the Engineer, each master shall be delivered with up to three (3) complete sets of the latest edition of registered remote monitoring software with full manufacture's

support. Each set shall consist of software on CD, DVD, or other suitable media approved by the Engineer, and a bound set of manuals containing loading and operating instruction. One copy of the software and support data shall be delivered to the Agency in charge of system operation, if other than IDOT. One of these two sets will be provided to the Agency Signal Maintenance Contractor for use in monitoring the system.

The approved manufacturer of equipment shall loan the District one master controller and two intersection controllers of the most recent models and the newest software version to be used for instructional purposes in addition to the equipment to be supplied for the Contract.

The Contractor shall arrange to install a standard voice-grade dial-up telephone line to the master controller. This shall be accomplished through the following process utilizing District One staff. This telephone line may be coupled with a DSL line and a phone filter to isolate the dial-up line. An E911 address is required.

The cabinet shall be provided with an Outdoor Network Interface for termination of the telephone service. It shall be mounted to the inside of the cabinet in a location suitable to provide access for termination of the telephone service at a later date.

Full duplex communication between the master and its local controllers is recommended, but at this time not required. The data rate shall be 1200 baud minimum and shall be capable of speeds to 38,400 or above as technology allows. The controller, when installed in an Ethernet topology, may operate non-serial communications.

The cabinet shall be equipped with a 9600 baud, auto dial/auto answer modem. It shall be a US robotics 33.6K baud rate or equal.

As soon as practical or within one week after the contract has been awarded, the Contractor shall contact (via phone) the Administrative Support Manager in the District One Business Services Section at (847) 705-4011 to request a phone line installation.

A follow-up fax transmittal to the Administrative Support Manager (847-705-4712) with all required information pertaining to the phone installation is required from the Contractor as soon as possible or within one week after the initial request has been made. A copy of this fax transmittal must also be faxed by the Contractor to the Traffic Signal Systems Engineer at (847) 705-4089. The required information to be supplied on the fax shall include (but not limited to): A street address for the new traffic signal controller (or nearby address); a nearby existing telephone number; what type of telephone service is needed; the name and number of the Contractor's employee for the telephone company to contact regarding site work and questions.

The usual time frame for the activation of the phone line is 4-6 weeks after the Business Services Section has received the Contractor supplied fax. It is, therefore, imperative that the phone line conduit and pull-string be installed by the Contractor in anticipation of this time frame. On jobs which include roadway widening in which the conduit cannot be installed until this widening is completed, the Contractor will be allowed to delay the phone line installation request to the Business Services Section until a point in time that is 4-6 weeks prior to the anticipated completion of the traffic signal work. The contractor shall provide the Administrative Support Manager with an expected installation date considering the 4-6 week processing time.

The telephone line shall be installed and activated one month before the system final inspection.

All costs associated with the telephone line installation and activation (not including the Contract specified conduit installation between the point of telephone service and the traffic signal controller cabinet) shall be paid for by the District One Business Services Section (i.e., this will be an IDOT phone number not a Contractor phone number).

UNINTERRUPTIBLE POWER SUPPLY.

Add the following to Article 862.01 of the Standard Specifications:

The UPS shall have the power capacity to provide normal operation of a signalized intersection that utilizes all LED type signal head optics, for a minimum of six hours.

Add the following to Article 862.02 of the Standard Specifications:

Materials shall be according to Article 1074.04 as modified in UNINTERRUPTIBLE POWER SUPPLY in Division 1000 of these specifications.

Add the following to Article 862.03 of the Standard Specifications:

The UPS shall additionally include, but not be limited to, a battery cabinet. The UPS shall provide reliable emergency power to the traffic signals in the event of a power failure or interruption.

Revise Article 862.04 of the Standard Specifications to read:

Installation.
When a UPS is installed at an existing traffic signal cabinet, the UPS cabinet shall partially rest on the lip of the existing controller cabinet foundation and be secured to the existing controller cabinet by means of at least four (4) stainless steel bolts. The UPS cabinet shall be completely enclosed with the bottom and back constructed of the same material as the cabinet.

When a UPS is installed at a new signal cabinet and foundation, it shall be mounted as shown on the plans.

At locations where UPS is installed and Emergency Vehicle Priority System is in use, any existing incandescent confirmation beacons shall be replaced with LED lamps in accordance with the District One Emergency Vehicle Priority System specification at no additional cost to the contract. A concrete apron 67 in. x 50 in. x 5 in. (1702mm x 1270mm x 130mm) shall be provided on the side of the existing Type D Foundation, where the UPS cabinet is located. The concrete apron shall follow the District 1 Standard Traffic Signal Design Detail, Type D for Ground Mounted Controller Cabinet and UPS Battery Cabinet. The concrete apron shall follow Articles 424 and 202 of the Standard Specifications.

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

Revise Article 862.05 of the Standard Specifications to read:

Basis of Payment.
This work will be paid for at the contract unit price per each for UNINTERRUPTIBLE POWER SUPPLY SPECIAL. Replacement of Emergency Vehicle Priority System confirmation beacons and any required modifications to the traffic signal controller shall be included in the cost of the UNINTERRUPTIBLE POWER SUPPLY SPECIAL item. The concrete apron and earth excavation required shall be included in the cast of the UNINTERRUPTIBLE POWER SUPPLY SPECIAL item.

FIBER OPTIC CABLE.

Add the following to Article 871.01 of the Standard Specifications:

The Fiber Optic cable shall be installed in conduit or as specified on the plans.

Add the following to Article 872.02 of the Standard Specifications:

The control cabinet distribution enclosure shall be CSC FTWO12KST-W/O 12 Port Fiber Wall Enclosure or an approved equivalent. The fiber optic cable shall provide six fibers per tube for the amount of fibers called for in the Fiber Optic Cable pay item in the Contract. Fiber Optic cable may be gel filled or have an approved water blocking tape.

Add the following to Article 871.04 of the Standard Specifications:

A minimum of six multimode fibers from each cable shall be terminated with approved mechanical connectors at the distribution enclosure. Fibers not being used shall be labeled “spare." Fibers not attached to the distribution enclosure shall be capped and sealed. A minimum of 13.0 feet (4m) of extra cable length shall be provided for controller cabinets. The controller cabinet extra cable length shall be stored as directed by the Engineer.

Add the following to Article 871.06 of the Standard Specifications:

The distribution enclosure and all connectors will be included in the cost of the fiber optic cable.

MAST ARM ASSEMBLY AND POLE.

Revise Article 877.01 of the Standard Specifications to read:

Description.
This work shall consist of furnishing and installing a steel mast arm assembly and pole and a galvanized steel or extruded aluminum shroud for protection of the base plate.

Revise Article 877.03 of the Standard Specifications:

Mast arm assembly and pole shall be as follows.

(a) Steel Mast Arm Assembly and Pole and Steel Combination Mast Arm Assembly and Pole. The steel mast arm assembly and pole and steel combination mast arm assembly and pole shall consist of a traffic signal mast arm, a luminaire mast arm or davit (for combination pole only), a pole, and a base, together with anchor rods and other appurtenances. The configuration of the mast arm assembly, pole, and base shall be according to the details shown on the plans.

(1) Loading. The mast arm assembly and pole, and combination mast arm assembly and pole shall be designed for the loading shown on the Highway Standards or elsewhere on the plans, whichever is greater. The design shall be according to AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 1994 Edition for 80 mph (130 km/hr) wind velocity. However, the arm-to-pole connection for tapered signal and luminaire arms shall be according to the "ring plate" detail as shown in Figure 11-1(f) of the 2002 Interim, to the AASHTO "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 2001 4th Edition.

(2) Structural Steel Grade. The mast arm and pole shall be fabricated according to ASTM A 595, Grade A or B, ASTM A 572 Grade 55, or ASTM A 1011 Grade 55 HSLAS Class 2. The base and flange plates shall be of structural steel according to AASHTO M 270 Grade 50 (M 270M Grade 345). Luminaire arms and trussed arms 15 ft (4.5 m) or less shall be fabricated from one steel pipe or tube size according to ASTM A 53 Grade B or ASTM A 500 Grade B or C. All mast arm assemblies, poles, and bases shall be galvanized according to AASHTO M 111.

(3) Fabrication. The design and fabrication of the mast arm assembly, pole, and base shall be according to the requirements of the Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals published by AASHTO. The mast arm and pole may be of single length or sectional design. If section design is used, the overlap shall be at least 150 percent of the maximum diameter of the overlapping section and shall be assembled in the factory.

The manufacturer will be allowed to slot the base plate in which other bolt circles may fit, providing that these slots do not offset the integrity of the pole. Circumferential welds of tapered arms and poles to base plates shall be full penetration welds.

(4) Shop Drawing Approval. The Contractor shall submit detailed drawings showing design materials, thickness of sections, weld sizes, and anchor rods to the Engineer for approval prior to fabrication. These drawings shall be at least 11 x 17 in. (275 x 425 mm) in size and of adequate quality for microfilming. All product data and shop drawings shall be submitted in electronic form on CD-ROM

(b) Anchor Rods. The anchor rods shall be ASTM F 1554 Grade 105, coated by the hot-dip galvanizing process according to AASHTO M 232, and shall be threaded a minimum of 7 1/2 in. (185 mm) at one end and have a bend at the other end. The first 12 in. (300 mm) at the threaded end shall be galvanized. Two nuts, one lock washer, and one flat washer shall be furnished with each anchor rod. All nuts and washers shall be galvanized.

(c) The galvanized steel or extruded aluminum shroud shall have dimensions similar to those detailed in the "District One Standard Traffic Signal Design Details." The shroud shall be installed such that it 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.

Add the following to Article 877.04 of the Standard Specifications:

The shroud shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole.

CONCRETE FOUNDATIONS.

Add the following to Article 878.03 of the Standard Specifications:

All anchor bolts shall be according to Article 1006.09, with all anchor bolts hot dipped galvanized a minimum of 12 in. (300 mm) from the threaded end.

Concrete Foundations, Type “A” for Traffic Signal Posts shall provide anchor bolts with the bolt pattern specified within the “District One Standard Traffic Signal Design Details.” All Type “A” foundations shall be a minimum depth of 48 inches (1220 mm).

Concrete Foundations, Type “C” for Traffic Signal Cabinets with Uninterruptible Power Supply (UPS) cabinet installations shall be a minimum of 72 inches (1830 mm) long and 31 inches (790 mm) wide. All Type “C” foundations shall be a minimum depth of 48 inches (1220 mm). The concrete apron in front of the Type IV or V cabinet shall be 36 in. x 48 in. x 5 in. (915 mm X 1220 mm X 130 mm). The concrete apron in front of the UPS cabinet shall be 36 in. x 67 in. x 5 in. (915 mm X 1700 mm X 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type “D” for Traffic Signal Cabinets shall be a minimum of 48 inches (1220 mm) long and 31 inches (790 mm) wide. All Type “D” foundations shall be a minimum depth of 48 inches (1220 mm). The concrete apron shall be 36 in. x 48 in. x 5 in. (910 mm X 1220 mm X 130 mm). Anchor bolts shall provide bolt spacing as required by the manufacturer.

Concrete Foundations, Type “E” for Mast Arm and Combination Mast Arm Poles shall meet the current requirements listed in the Highway Standards.

Foundations used for Combination Mast Arm Poles shall provide an extra 2-1/2 inch (65 mm) raceway.

No foundation is to be poured until the Resident Engineer gives his/her approval as to the depth of the foundation.

LIGHT EMITTING DIODE (LED) SIGNAL HEAD AND OPTICALLY PROGRAMMED LED SIGNAL HEAD.

Add the following to the first paragraph of Article 880.04 of the Standard Specifications:

Basis of Payment.
The price shall include furnishing the equipment described above, all mounting hardware and installing them in satisfactory operating condition.

LIGHT EMITING DIODE (LED), SIGNAL HEAD, RETROFIT

Description.
This work shall consist of retrofitting an existing polycarbonate traffic signal head with a traffic signal module, pedestrian signal module, and pedestrian countdown signal module, with light emitting diodes (LEDs) as specified in the plans.

Materials.
Materials shall be according to LIGHT EMITTING DIODE (LED) AND OPTICALLY PROGRAMMED LED SIGNAL HEAD, AND LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD in Divisions 880, 881 and 1000 of these specifications.

Add the following to Article 880.04 of the Standard Specifications:

Basis of Payment.
This item shall be paid for at the contract unit price each for SIGNAL HEAD, LED, RETROFIT, or PEDESTRIAN SIGNAL HEAD, LED, RETROFIT, for the type and number of polycarbonate signal heads, faces, and sections specified, which price shall be payment in full for furnishing the equipment described above including LED modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of faces and the method of mounting.

LIGHT EMITTING DIODE (LED) PEDESTRIAN SIGNAL HEAD

Add the following to the third paragraph of Article 881.03 of the Standard Specifications:

No mixing of different types of pedestrian traffic signals or displays will be permitted.

Add the following to Article 881.03 of the Standard Specifications:

(a) Pedestrian Countdown Signal Heads.

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

(2) Pedestrian Countdown Signal Heads shall be 16 inch (406mm) x 18 inch (457mm), for single units with the housings glossy black polycarbonate. Connecting hardware and

mounting brackets shall be polycarbonate (black). A corrosion 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.

(3) Each pedestrian signal LED module shall be fully MUTCD compliant and shall consist of double overlay message combining full LED symbols of an Upraised Hand and a Walking Person. "Egg Crate" type sun shields are not permitted. Numerals shall measure 9 inches (229mm) in height and easily identified from a distance of 120 feet (36.6m).

Add the following to Article 881.04 of the Standard Specifications:

Basis of Payment.
The price shall include furnishing the equipment described above, all mounting hardwire and installing them in satisfactory operating condition.

DETECTOR LOOP.

Revise Section 886 of the Standard Specifications to read:

Description.
This work shall consist of furnishing and installing a detector loop in the pavement.

Procedure.
A minimum of seven (7) working days prior to the Contractor cutting loops, the Contractor shall have the proposed loop locations marked and contact the Area Traffic Signal Maintenance and Operations Engineer (847) 705-4424 to inspect and approve the layout. When preformed detector loops are installed, the Contractor shall have them inspected and approved prior to the pouring of the Portland cement concrete surface, using the same notification process as above.

Installation.
Loop detectors shall be installed according to the requirements of the "District One 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 when possible in order to minimize the length of the saw-cut (homerun on preformed detector loops) unless directed otherwise by the Engineer or as shown on the plan.

The detector loop cable insulation shall be labeled with the cable specifications.

Each loop detector lead-in wire shall be labeled in the handhole using a Panduit PLFIM water proof tag, or an approved equal, secured to each wire with nylon ties.

Resistance to ground shall be a minimum of 100 mega-ohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries. Quality readings shall be more than 5.

(a) Type I. All loops installed in new asphalt pavement shall be installed in the binder course and not in the surface course. The edge of pavement, curb and handhole shall be cut with a 1/4 inch (6.3 mm) deep x 4 inches (100 mm) saw cut to mark location of each loop lead-in.

(b) Loop sealant shall be a two-component thixotropic chemically cured polyurethane either Chemque Q-Seal 295, Percol Elastic Cement AC Grade or an approved equal. The sealant shall be installed 1/8 inch (3 mm) below the pavement surface, if installed above the surface the overlap shall be removed immediately.

(c) 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 price of the detector loop. Unit duct, trench and backfill, and drilling of pavement or handholes shall be included in detector loop quantities.

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

(e) Preformed detector loops shall be installed in new pavement constructed of Portland cement concrete using mounting chairs or tied to re-bar or the preformed detector loops may be placed in the sub-base. Loop lead-ins shall be extended to a temporary protective enclosure near the proposed handhole location. The protective enclosure shall provide sufficient protection from other construction activities and may be buried for additional protection.

(f) Handholes shall be placed next to the shoulder or back of curb when preformed detector loops enter the handhole. Non-metallic coilable duct, included in this pay item, shall be used to protect the preformed lead-ins from back of curb to the handhole.

(g) Preformed detector loops shall be factory assembled with ends capped and sealed against moisture and other contaminants. 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 (17.2 mm) outside diameter (minimum), 3/8 inch (9.5 mm) inside diameter (minimum) Class A oil resistant synthetic cord reinforced hydraulic hose with 250 psi (1,720 kPa) internal pressure rating or a similarly sized XLPE cable jacket. 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. For XLPE jacketed preformed loops, all splice connections shall be soldered, sealed, and tested before being sealed in a high impact glass impregnated plastic splice enclosure. 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. The preformed loops shall be constructed to allow a minimum of 6.5 feet of extra cable in the handhole.

Method of Measurement.

This work will be measured for payment in feet (meters) in place. Type I detector loop will be measured along the sawed slot in the pavement containing the loop and lead-in, rather

than the actual length of the wire. Preformed detector loops will be measured along the detector loop and lead-in embedded in the pavement, rather than the actual length of the wire.

Basis of Payment.
This work shall be paid for at the contract unit price per foot (meter) 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.

EMERGENCY VEHICLE PRIORITY SYSTEM.

Revise Section 887 of the Standard Specifications to read:

It shall be the Contractor's responsibility to contact the municipality or fire district to verify the brand of emergency vehicle pre-emption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency.

All new installations shall be equipped with Confirmation Beacons as shown on the "District One Standard Traffic Signal Design Details." The Confirmation Beacon shall consist of a 6 watt Par 38 LED flood lamp with a 30 degree light spread, maximum 6 watt energy consumption at 120V, and a 2,000 hour warranty for each direction of pre-emption. 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. In order to maintain uniformity between communities, the confirmation beacons shall indicate when the control equipment receives the pre-emption signal. The pre-emption movement shall be signalized by a flashing indication at the rate specified by Section 4L.01 of the "Manual on Uniform Traffic Control Devices," and other applicable sections of future editions. The stopped pre-empted movements shall be signalized by a continuous indication.

All light operated systems shall include security and transit preemption software and operate at a uniform rate of 14.035 Hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District.

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 preemption 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.

TEMPORARY TRAFFIC SIGNAL INSTALLATION.

Revise Section 890 of the Standard Specifications to read:

Description.
This work shall consist of furnishing, installing, maintaining, and removing a temporary traffic signal installation as shown on the plans, including but not limited to temporary signal heads, emergency vehicle priority systems, interconnect, vehicle detectors, uninterruptible power supply, and signing. Temporary traffic signal controllers and cabinets interconnected to railroad traffic control devices shall be new. When temporary traffic signals will be operating within a county or local agency Traffic Management System, the equipment must be NTCIP compliant and compatible with the current operating requirements of the Traffic Management System.

General.
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 Controller and Cabinet" specification). A representative of the approved control equipment vendor shall be present at the temporary traffic signal turn-on inspection.

Construction Requirements.
(a) Controllers.

1. Only controllers supplied by one of the District approved closed loop equipment manufacturers will be approved for use at temporary signal locations. All controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with existing monitoring software approved by IDOT District 1, installed in NEMA TS2 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 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 railroad interconnected temporary controllers and cabinets shall be new and shall satisfy the requirements of Article 857.02 of the Standard Specifications as modified herein.

2. Only control equipment, including controller cabinet and peripheral equipment, supplied by one of the District approved closed loop equipment manufacturers will be approved for use at temporary traffic signal locations. All control equipment for the temporary traffic signal(s) shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be the same manufacturer brand and model number with current software installed.

(b) Cabinets. 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 (100 mm) diameter holes to run the electric cables through. The 4 inch (100 mm) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

(c) Grounding. 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 shall meet the requirements of the District 1 Traffic Signal Specifications for “Grounding of Traffic Signal Systems.”

(d) Traffic Signal Heads. All traffic signal sections and pedestrian signal sections shall be 12 inches (300 mm). Traffic signal sections shall be LED with expandable view, unless otherwise approved by the Engineer. Pedestrian signal heads shall be Light Emitting Diode (LED) Pedestrian Countdown Signal Heads except when a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing. When a temporary traffic signal is installed at an intersection interconnected with a railroad grade crossing, Light Emitting Diode (LED) Pedestrian Signal Heads shall be furnished. The temporary traffic signal heads shall be placed as indicated on the temporary traffic signal plan or as directed by the Engineer. The Contractor shall furnish enough extra cable length 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.

(e) Interconnect.

1. Temporary traffic signal interconnect shall be provided using fiber optic cable or wireless interconnect technology as specified in the plans. The Contractor may request, in writing, to substitute the fiber optic temporary interconnect indicated in the contract documents with a wireless interconnect. The Contractor must provide assurances that the radio device will operate properly at all times and during all construction staging. If approved for use by the Engineer, the Contractor shall submit marked-up traffic signal plans indicating locations of radios and antennas and installation details. If wireless interconnect is used, and in the opinion of the engineer, it is not viable, or if it fails during testing or operations, the Contractor shall be responsible for installing all necessary poles, fiber optic cable, and other infrastructure for providing temporary fiber optic interconnect at no cost to the contract.

2. The existing system interconnect and phone lines are to be maintained as part of the Temporary Traffic Signal Installation specified for on the plan. The interconnect shall be installed into the temporary controller cabinet as per the notes or details on the plans. All labor and equipment required to install and maintain the existing interconnect as part of the Temporary Traffic Signal Installation shall be included in the item Temporary Traffic Signal Installation. When shown in the plans, temporary traffic signal interconnect equipment shall be furnished and installed. The temporary traffic signal interconnect shall maintain interconnect communications throughout the entire signal system for the duration of the project.

3. Temporary wireless interconnect, complete. The radio interconnect system shall be compatible with Eagle or Econolite controller closed loop systems. This item shall include all temporary wireless interconnect components, complete, at the adjacent existing traffic signal(s) to provide a completely operational closed loop system. This item shall include all materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnect system shall include the following components:

a. Rack or Shelf Mounted RS-232 Frequency Hopping Spread Spectrum (FHSS) Radio
b. Software for Radio Configuration (Configure Frequency and Hopping Patterns)
c. Antennas (Omni Directional or Yagi Directional)
d. Antenna Cables, LMR400, Low Loss. Max. 100-ft from controller cabinet to antenna
e. Brackets, Mounting Hardware, and Accessories Required for Installation
f. RS232 Data Cable for Connection from the radio to the local or master controller
g. All other components required for a fully functional radio interconnect system

All controller cabinet modifications and other modifications to existing equipment that are required for the installation of the radio interconnect system components shall be included in this item.

The radio interconnect system may operate at 900Mhz (902-928) or 2.4 Ghz depending on the results of a site survey. The telemetry shall have an acceptable rate of transmission errors, time outs, etc. comparable to that of a hardwire system.

The proposed master controller and telemetry module shall be configured for use with the radio interconnect at a minimum rate of 9600 baud.

The radio interconnect system shall include all other components required for a complete and fully functional telemetry system and shall be installed in accordance to the manufacturers recommendations.

The following radio equipment is currently approved for use in Region One/District One: Encom Model 5100 and Intuicom Communicator II.

(f) Emergency Vehicle Pre-Emption. All emergency vehicle preemption 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 preemption equipment to be installed prior to the contract bidding. The equipment must be completely compatible with all components of the equipment currently in use by the Agency. All light operated systems shall operate at a uniform rate of 14.035 hz ±0.002, or as otherwise required by the Engineer, and provide compatible operation with other light systems currently being operated in the District. All labor and material required to install and maintain the Emergency Vehicle Preemption installation shall be included in the item Temporary Traffic Signal Installation.

(g) Vehicle Detection. 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. Microwave vehicle sensors or video vehicle detection system shall be approved by IDOT prior to Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the microwave vehicle sensor or video vehicle detection system in accordance to the manufacturer’s recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the microwave vehicle sensor or 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 microwave vehicle sensor or 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.

(h) Uninterruptible Power Supply. All temporary traffic signal installations shall have Uninterruptible Power Supply (UPS). The UPS cabinet shall be mounted to the temporary traffic signal cabinet and meet the requirements of Uninterruptible Power Supply in Divisions 800 and 1000 of these specifications.

(i) Signs. 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 assembly and pole(s) and posts are specified for the permanent signals, the signs shall be relocated to the new equipment at no extra cost. Any intersection regulatory signs that are required for the temporary traffic signal shall be provided as shown on the plans or as directed by the Engineer. Relocation, removing, bagging and installing the regulatory signs for the various construction stages shall be provided as shown on the plans or as directed by the Engineer.

(j) Energy Charges. The electrical utility energy charges for the operation of the temporary traffic signal installation shall be paid for by others if the installation replaces an existing signal. Otherwise charges shall be paid for under 109.05 of the Standard Specifications.

(k) Maintenance. Maintenance shall meet the requirements of the Standard Specifications and MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION in Division 800 of these specifications. Maintenance of temporary signals and of the existing signals shall be included in the cost of the TEMPORARY TRAFFIC SIGNAL INSTALLATION pay 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 the Contract or any portion thereof. 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 request that the Resident Engineer contact the Bureau of Traffic Operations (847) 705-4424 for an inspection of the installation(s).

(l) Temporary Traffic Signals for Bridge Projects. Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, District One Traffic Signal Specifications and any plans for Bridge Temporary Traffic Signals included in the plans. The installation shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification. In addition all electric cable shall be aerially suspended, at a minimum height of 18 feet (5.5m) on temporary wood poles (Class 5 or better) of 45 feet (13.7 m) 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 as shown in the plans, or as directed by the Engineer. Microwave vehicle sensors or video vehicle detection system may be used in place of detector loops as approved by the Engineer.

(m) Temporary Portable Traffic Signal for Bridge Projects.

1. Unless otherwise directed by the Engineer, temporary portable traffic signals shall be restricted to use on roadways of less than 8000 ADT that have limited access to electric utility service, shall not be installed on projects where the estimated need exceeds ten (10) weeks, and shall not be in operation during the period of November through March. The

Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract if the bridge project or Engineer requires temporary traffic signals to remain in operation into any part of period of November through March. If, in the opinion of the engineer, the reliability and safety of the temporary portable traffic signal is not similar to that of a temporary span wire traffic signal installation, the Contractor shall replace the temporary portable traffic signals with temporary span wire traffic signals noted herein at no cost to the contract.

2. The controller and LED signal displays shall meet the Standard Specifications and all other requirements in this TEMPORARY TRAFFIC SIGNAL INSTALLATION specification.

3. Work shall be according to Article 701.18(b) of the Standard Specifications except as noted herein.

4. General.

a. The temporary portable bridge traffic signals shall be trailer-mounted units. The trailer-mounted units shall be set up securely and level. Each unit shall be self-contained and consist of two signal heads. The left signal head shall be mounted on a mast arm capable of extending over the travel lane. Each unit shall contain a solar cell system to facilitate battery charging. There shall be a minimum of 12 days backup reserve battery supply and the units shall be capable of operating with a 120 V power supply from a generator or electrical service.

b. All signal heads located over the travel lane shall be mounted at a minimum height of 17 feet (5m) from the bottom of the signal back plate to the top of the road surface. All far right signal heads located outside the travel lane shall be mounted at a minimum height of 8 feet (2.5m) from the bottom of the signal back plate to the top of the adjacent travel lane surface.

c. The long all red intervals for the traffic signal controller shall be adjustable up to 250 seconds in one-second increments.

d. As an alternative to detector loops, temporary portable bridge traffic signals may be equipped with microwave sensors or other approved methods of vehicle detection and traffic actuation.

e. All portable traffic signal units shall be interconnected using hardwire communication cable. Radio communication equipment may be used only with the approval of the Engineer. If radio communication is used, a site analysis shall be completed to ensure that there is no interference present that would affect the traffic signal operation. The radio equipment shall meet all applicable FCC requirements.

f. The temporary portable bridge traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV and other applicatble portions of the currently adopted version of the Manual on Uniform Traffic Control Devices (MUTCD) and the Illinois MUTCD. The signal system shall be designed to continuously operate over an ambient temperature range between -30 ºF (-34 ºC) and 120 ºF (48 ºC). When not being utilized to inform and direct traffic, portable signals shall be treated as nonoperating equipment according to Article 701.11.

g. Basis of Payment. This work will be paid for according to Article 701.20(c).

Basis of Payment.
This work shall be paid for at the contract unit price each for TEMPORARY TRAFFIC SIGNAL INSTALLATION, TEMPORARY BRIDGE TRAFFIC SIGNAL INSTALLATION, or TEMPORARY PORTABLE BRIDGE TRAFFIC SIGNAL INSTALLATION, the price of which shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in the Contract plans, microwave vehicle sensors, video vehicle detection system, any maintenance or adjustment to the microwave vehicle sensors/video vehicle detection system, the temporary wireless interconnect system complete, temporary fiber optic interconnect system complete, all material required, the installation and complete removal of the temporary traffic signal. Each intersection will be paid for separately.

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 is to become the property of the Contractor shall be disposed of outside the right-of-way at the Contractor's expense.

All equipment to be returned to the State shall be delivered by the Contractor to the State's Traffic Signal Maintenance Contractor's main facility. The Contractor shall contact the State's Electrical Maintenance Contractor to schedule an appointment to deliver the equipment. No equipment will be accepted without a prior appointment. All equipment shall be delivered within 30 days of removing it from the traffic signal installation. The Contractor shall provide 5 copies of a list of equipment that is to remain the property of the State, including model and serial numbers, where applicable. The Contractor shall also provide a copy of the Contract plan or special provision showing the quantities and type of equipment. 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. If equipment is not returned with these requirements, it will be rejected by the State's Electrical Maintenance Contractor. The Contractor shall be responsible for the condition of the traffic signal equipment from the time Contractor takes maintenance of the signal installation until the acceptance of a receipt drawn by the State's Electrical Maintenance Contractor indicating the items have been returned in good condition.

The Contractor shall safely store and arrange for pick up or delivery of all equipment to be returned to agencies other than the State. The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications at no cost to the contract.

TRAFFIC SIGNAL PAINTING.

Description.
This work shall include surface preparation, powder type painted finish application and packaging of new galvanized steel traffic signal mast arm poles and posts assemblies. All

work associated with applying the painted finish shall be performed at the manufacturing facility for the pole assembly or post or at a painting facility approved by the Engineer. Traffic signal mast arm shrouds and post bases shall also be painted the same color as the pole assemblies and posts.

Surface Preparation.
All weld flux and other contaminates shall be mechanically removed. The traffic mast arms and post assemblies shall be degreased, cleaned, and air dried to assure all moisture is removed.

Painted Finish.
All galvanized exterior surfaces shall be coated with a urethane or triglycidyl isocyanurate (TGIC) polyester powder to a dry film thickness of 2.0 mils. Prior to application, the surface shall be mechanically etched by brush blasting (Ref. SSPC-SP7) and the zinc coated substrate preheated to 450 ºF for a minimum one (1) hour. The coating shall be electrostatically applied and cured by elevating the zinc-coated substrate temperature to a minimum of 400 ºF.

The finish paint color shall be one of the manufacturer's standard colors and shall be as selected by the local agency responsible for paint costs. The Contractor shall confirm, in writing, the color selection with the local responsible agency and provide a copy of the approval to the Engineer and a copy of the approval shall be included in the material catalog submittal.

Painting of traffic signal heads, pedestrian signal heads and controller cabinets is not included in this pay item.

Any damage to the finish after leaving the manufacturer's facility shall be repaired to the satisfaction of the Engineer using a method recommended by the manufacturer and approved by the Engineer. If while at the manufacturer's facility the finish is damaged, the finish shall be re-applied at no cost to the contract.

Warranty.
The Contractor shall furnish in writing to the Engineer, the paint manufacturer's standard warranty and certification that the paint system has been properly applied.

Packaging.
Prior to shipping, the poles and posts shall be wrapped in ultraviolet-inhibiting plastic foam or rubberized foam.

Basis of Payment.
This work shall be paid for at the contract unit price each for PAINT NEW MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, PAINT NEW COMBINATION MAST ARM AND POLE, UNDER 40 FEET (12.19 METER), PAINT NEW COMBINATION MAST ARM AND POLE, 40 FEET (12.19 METER) AND OVER, or PAINT NEW TRAFFIC SIGNAL POST of the length specified, which shall be payment in full for painting and packaging the traffic signal mast arm poles and posts described above including all shrouds, bases and appurtenances.

ILLUMINATED STREET NAME SIGN

Description.
This work shall consist of furnishing and installing a LED internally illuminated street name sign.

Materials.
Materials shall be in accordance with ILLUMINATED STREET NAME SIGN in Division 1000 of these specifications.

Installation.
The sign can be mounted on most steel mast arm poles. Mounting on aluminum mast arm pole requires supporting structural calculations. Some older or special designed steel mast arm poles may require structural evaluation to assure that construction of the mast arm pole is adequate for the proposed additional loading. Structural calculations and other supporting documentation as determined by the Engineer shall be provided by the contractor for review by the Department.

The sign shall be located on a steel traffic signal mast arm no further than 8-feet from the center of the pole to the center of the sign at a height of between 16 to 18-feet above traveled pavement. Mounting hardware shall be Pelco model SE-5015, or approved equal, utilizing stainless steel components.

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

Basis of Payment.
This work will be paid for at the contract unit price each for ILLUMINATED STREET NAME SIGN, of the length specified which shall be payment in full for furnishing and installing the LED internally illuminated street sign, complete with circuitry and mounting hardware including photo cell, circuit breaker, fusing, relay, connections and cabling as shown on the plans for proper operation and installation.

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) 705-4424 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.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. 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 IDOT 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.

2. The following deliverables shall be provided for LEVEL I Re-Optimization.
a. Consultant shall furnish to IDOT a cover letter describing the extent of the re-optimization work performed.
b. Consultant shall furnish an updated intersection graphic display for the subject intersection to IDOT and to IDOT's Traffic Signal Maintenance Contractor.

(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. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.
c. 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.

2. The following deliverables shall be provided for LEVEL II Re-Optimization.
a. Consultant shall furnish to IDOT 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 IDOT 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
(3) Traffic counts conducted at the subject intersection
(4) New or updated intersection graphic display file for the subject intersection
(5) The CD shall be labeled with the IDOT system number and master location, as well as the submittal date and the consultant logo. 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) 705-4424 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.

A listing of existing signal equipment, interconnect information, phasing data, and timing patterns may be obtained from the Department, if available and as appropriate. The existing SCAT Report is available for review at the District One office and if the Consultant provides blank computer disks, copies of computer simulation files for the existing optimized system and a timing database that includes intersection displays will be made for the Consultant. 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.

2. 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.

3. As necessary, the intersections shall be re-addressed and all system detectors reassigned in the master controller according to the current standard of District One.

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 IDOT 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 IDOT 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.
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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.

TEMPORARY TRAFFIC SIGNAL TIMINGS

Description.
This work shall consist of developing and maintaining appropriate traffic signal timings for the specified intersection for the duration of the temporary signalized condition, as well as impact to existing traffic signal timings caused 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 TIMINGS, which price shall be payment in full for performing all work described herein per intersection. When the temporary traffic signal installation is turned on and/or detour 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 and/or detour.

MODIFYING EXISTING CONTROLLER CABINET.

The work shall consist of modifying an existing controller cabinet as follows:

(a) Uninterruptible Power Supply (UPS). The addition of uninterruptible power supply (UPS) to an existing controller cabinet could require the relocation of the existing controller cabinet items to allow for the installation of the uninterruptible power supply (UPS) components inside the existing controller cabinet as outlined under Sections 862 and 1074.04 of the Standard Specifications.

(b) Light Emitting Diode (LED) Signal Heads, Light Emitting Diode (LED) Optically Programmed Signal Heads and Light Emitting Diode (LED) Pedestrian Signal Heads. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(5)(b)(2) of the Standard Specifications and the recommended load requirements of the light emitting diode (LED) signal heads that are being installed at the existing traffic signal. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.

(c) Light Emitting Diode (LED), Signal Head, Retrofit. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(2) of the Standard Specifications and the recommended load requirements of light emitting diode (LED) traffic signal modules, pedestrian signal modules, and pedestrian countdown signal modules as specified in the plans. If any of the existing load switches do not meet these requirements, they shall be replaced, as directed by the Engineer.

Basis of Payment.
Modifying an existing controller cabinet will be paid for at the contract unit price per each for Modify Existing Controller Cabinet. This shall include all material and labor required to complete the work as described above, the removal and disposal of all items removed from the controller cabinet, as directed by the Engineer. The equipment for the Uninterruptible Power Supply (UPS) and labor to install it in the existing controller cabinet shall be included in the pay item Uninterruptible Power Supply. Modifying an existing controller will be paid for at the contract unit price per each for Modify Existing Controller, per Sections 895.04 and 895.08 of the Standard Specifications.

DIVISION 1000 MATERIALS

PEDESTRIAN PUSH-BUTTON.

Revise Article 1074.02(a) of the Standard Specifications to read:

The pedestrian push-button housing shall be constructed of aluminum alloy according to ASTM B 308 6061-T6 and powder coated yellow, unless otherwise noted on the plans. The housing shall be furnished with suitable mounting hardware.

Revise Article 1074-02(e) of the Standard Specifications to read:

Stations shall be designed to be mounted directly to a post, mast arm pole or wood pole. The station shall be aluminum and shall accept a 3 inch (75mm) round push-button assembly and a regulatory pedestrian instruction sign according to MUTCD, sign series R10-3e 9 x 15 inch sign with arrow(s) for a count-down pedestrian signal. The pedestrian station size without count-down pedestrian signals shall accommodate a MUTCD sign series R10-3b or R10-3d 9 x 12 inch sign with arrow(s).

Add the following to Article 1074.02(a) of the Standard Specifications:

(f) Location. Pedestrian push-buttons and stations shall be mounted directly to a post, mast arm pole or wood pole as shown on the plans and shall be fully accessible from a paved or concrete surface. See the District's Detail sheets for orientation and mounting details.

CONTROLLER CABINET AND PERIPHERAL EQUIPMENT.

Add the following to Article 1074.03 of the Standard Specifications:

(a) (6) 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.

(b) (5) Cabinets – Provide 1/8" (3.2 mm) thick unpainted aluminum alloy 5052-H32. The surface shall be smooth, free of marks and scratches. All external hardware shall be stainless steel.
(b) (6) Controller Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
(b) (7) Surge Protection – Plug-in type EDCO SHA-1250 or Atlantic/Pacific approved equal.
(b) (8) BIU – Containment screw required.
(b) (9) Transfer Relays – Solid state or mechanical flash relays are acceptable.
(b) (10) Switch Guards – All switches shall be guarded.
(b) (11) Heating – One (1) 200 watt, thermostatically-controlled, Hoffman electric heater, or approved equivalent.
(b) (12) Lighting – One (1) LED Panel shall be placed inside the cabinet top panel and one (1) LED Panel shall be placed on each side of the pull-out drawer/shelf assembly

located beneath the controller support shelf. The LED Panels shall be controlled by a wall switch. Relume Traffic Control Box LED Panels and power supply or approved equivalent.
(b) (13) The cabinet shall be equipped with a pull-out drawer/shelf assembly. A 1 ½ inch (38mm) 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. (23 kg) 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 (610mm) wide.
(b) (14) Plan & Wiring Diagrams – 12" x 16" (3.05mm x 4.06mm) moisture sealed container attached to door.
(b) (15) Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.
(b) (16) Field Wiring Labels – All field wiring shall be labeled.
(b) (17) Field Wiring Termination – Approved channel lugs required.
(b) (18) Power Panel – Provide a nonconductive shield.
(b) (19) Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
(b) (20) Police Door – Provide wiring and termination for plug in manual phase advance switch.
(b) (21) Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.

RAILROAD, FULL-ACTUATED CONTROLLER AND CABINET.

Controller shall comply with Article 1073.01 as amended in these Traffic Signal Special Provisions.

Controller Cabinet and Peripheral Equipment shall comply with Article 1074.03 as amended in these Traffic Signal Special Provisions.

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.

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 District One facility, prior to field installation. The vendor shall provide the technical equipment and assistance as required by the Engineer to fully test this equipment.

UNINTERRUPTIBLE POWER SUPPLY (UPS).

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

The UPS shall be line interactive 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 ℉ (25 ℃) (minim um 700 W/1000 VA active output capacity, with 90 percent minimum inverter efficiency).

Revise the first paragraph of Article 1074.04(a)(3) of the Standard Specifications to read:

The UPS shall have a minimum of four (4) sets of normally open (NO) and normally closed (NC) single-pole double-throw (SPDT) relay contact closures, available on a panel mounted terminal block or locking circular connectors, rated at a minimum 120 V/1 A, and labeled so as to identify each contact according to the plans.

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

The UPS shall be compatible with the District'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.

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

The battery cabinet housing shall have the following nominal outside dimensions: a width of 25 in. (785 mm), a depth of 16 in. (440 mm), and a height of 41 to 48 in. (1.1 to 1.3 m). Clearance between shelves shall be a minimum of 10 in. (250 mm).

UPS
End of paragraph 1074.04(b) (2)e

The door shall be equipped with a two position doorstop, one a 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, 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 shall be male type, twist-lock, rated as 15A, 125VAC with a NEMA L5-15P configuration and weatherproof lift cover plate (Hubbell model HBL4716C or approved equal). 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 leadcalcium 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 ℉ (-25 to + 71 ℃) for gel cell batteries a nd -40 to 140 ℉ (-40 to + 60 ℃) 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 uninterruptible 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.

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.

TRAFFIC SIGNAL POST.

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

All posts and bases shall be steel and hot dipped galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with TRAFFIC SIGNAL PAINTING in Division 800 of these specifications.

PEDESTRIAN PUSH-BUTTON POST.

Add the following to Article 1077.02(b) of the Standard Specifications:

All posts and bases shall be steel and hot-dipped galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with Traffic Signal Painting in Division 800 of these specifications.

MAST ARM ASSEMBLY AND POLE.

Add the following to Article 1077.03 (a) of the Standard Specifications:

Traffic signal mast arms shall be one piece construction, unless otherwise approved by the Engineer. All poles shall be galvanized. If the Department approves painting, powder coating by the manufacturer will be required over the galvanization in accordance with with TRAFFIC SIGNAL PAINTING in Division 800 of these specifications.

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.

LIGHT EMITTING DIODE (LED) TRAFFIC SIGNAL HEAD.

Add the following to Section 1078 of the Standard Specifications:

General.
All signal and pedestrian heads shall provide 12” (300 mm) displays with glossy yellow or black polycarbonate housings. All head housings shall be the same color (yellow or black) at the intersection. For new signalized intersections and existing signalized intersections where all signal and/or pedestrian heads are being replaced, the proposed head housings shall be black. Where only selected heads are being replaced, the proposed head housing color (yellow or black) shall match existing head housings. Connecting hardware and mounting brackets shall be polycarbonate (black). A corrosion 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. Post top mounting collars are required on all posts, and shall be constructed of the same material as the brackets.

Pedestrian signal heads shall be furnished with the international symbolic "Walking Person" and "Upraised Palm" displays. Egg crate sun shields are not permitted.

Signal heads shall be positioned according to the “District One Standard Traffic Signal Design Details."

LED signal heads (All Face and Section Quantities), (All Mounting Types) shall conform fully to the requirements of Articles 1078.01 and 1078.02 of the Standard Specifications amended herein.

1. The LED signal modules shall be replaced or repaired if an LED signal module fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery. LED signal modules which exhibit luminous intensities less than the minimum values specified in Table 1 of the ITE Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement (June 27, 2005) [VTSCH], or applicable successor ITE specifications, or show signs of entrance of moisture or contaminants within the first 60 months of the date of delivery shall be replaced or repaired. The manufacturer's written warranty for the LED signal modules shall be dated, signed by an Officer of the company and included in the product submittal to the State.

(a) Physical and Mechanical Requirements

1. Modules can be manufactured under this specification for the following faces:

a. 12 inch (300 mm) circular, multi-section
b. 12 inch (300 mm) arrow, multi-section
c. 12 inch (300 mm) pedestrian, 2 sections

2. The maximum weight of a module shall be 4 lbs. (1.8 kg).

3. Each module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

4. Material used for the lens and signal module construction shall conform to ASTM specifications for the materials.

5. The lens of the 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. Polymeric lens shall provide a surface coating or chemical surface treatment applied to provide abrasion resistance. The lens of the module shall be integral to the unit, convex with a smooth outer surface and made of plastic. The lens shall have a textured surface to reduce glare.

6. The use of tinting or other materials to enhance ON/OFF contrasts shall not affect chromaticity and shall be uniform across the face of the lens.

7. Each module shall have a symbol of the type of module (i.e. circle, arrow, etc.) in the color of the module. The symbol shall be 1 inch (25.4 mm) in diameter. Additionally, the color shall be written out in 1/2 inch (12.7mm) letters next to the symbol.

(b) Photometric Requirements

1. The minimum initial luminous intensity values for the modules shall conform to the values in Table 1 of the VTCSH (2005) for circular signal indications, and as stated in Table 3 of these specifications for arrow and pedestrian indications at 25 ℃.

2. The modules shall meet or exceed the illumination values stated in Articles 1078.01 and 1078.02 the Standard Specifications for circular signal indications, and Table 3 of these specifications for arrow and pedestrian indications, throughout the useful life based on normal use in a traffic signal operation over the operating temperature range.

3. The measured chromaticity coordinates of the modules shall conform to the chromaticity requirements of Section 4.2 of the VTCSH (2005) or applicable successor ITE specifications.

4. The LEDs utilized in the modules shall be AlInGaP technology for red, yellow, Portland orange (pedestrian) and white (pedestrian) indications, and GaN for green indications, and shall be the ultra bright type rated for 100,000 hours of continuous operation from -40 ℃ to +74 ℃.

(c) Electrical

1. Maximum power consumption for LED modules is per Table 2.

2. Operating voltage of the modules shall be 120 VAC. All parameters shall be measured at this voltage.

3. The modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

4. When a current of 20 mA AC (or less) is applied to the unit, the voltage read across the two leads shall be 15 VAC or less.

5. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

6. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

(d) Retrofit Traffic Signal Module

1. The following specification requirements apply to the Retrofit module only. All general specifications apply unless specifically superseded in this section.

2. Retrofit modules can be manufactured under this specification for the following faces:

a. 12 inch (300 mm) circular, multi-section
b. 12 inch (300 mm) arrow, multi-section
c. 12 inch (300 mm) pedestrian, 2 sections

3. Each Retrofit module shall be designed to be installed in the doorframe of a standard traffic signal housing. The Retrofit module shall be sealed in the doorframe with a one-piece EPDM (ethylene propylene rubber) gasket.

4. The maximum weight of a Retrofit module shall be 4 lbs. (1.8 kg).

5. Each Retrofit module shall be a sealed unit to include all parts necessary for operation (a printed circuit board, power supply, a lens and gasket, etc.), and shall be weather proof after installation and connection.

6. Electrical conductors for modules, including Retrofit modules, shall be 39.4 inches (1m) in length, with quick disconnect terminals attached.

7. The lens of the Retrofit module shall be integral to the unit, shall be convex with a smooth outer surface and made of plastic or of glass.

(e) The following specification requirements apply to the 12 inch (300 mm) arrow module only. All general specifications apply unless specifically superseded in this section.

1. The arrow module shall meet specifications stated in Section 9.01 of the Equipment and Material Standards of the Institute of Transportation Engineers (November 1998) [ITE Standards], Chapter 2 (Vehicle Traffic Control Signal Heads) or applicable successor ITE specifications for arrow indications.

2. 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.

(f) The following specification requirement applies to the 12 inch (300 mm) programmed visibility (PV) module only. All general specifications apply unless specifically superseded in this section.

1. The LED module shall be a module designed and constructed to be installed in a programmed visibility (PV) signal housing without modification to the housing.

(g) The following specification requirements apply to the 12 inch (300 mm) Pedestrian module only. All general specifications apply unless specifically superseded in this section.

1. Each pedestrian signal LED module shall provide the ability to actuate the solid upraised hand and the solid walking person on one 12 inch (300mm) section.

2. Two (2) pedestrian sections shall be installed. The top section shall be wired to illuminate only the upraised hand and the bottom section shall be the walking man.

3. "Egg Crate" type sun shields are not permitted. All figures must be a minimum of 9 inches (225mm) in height and easily identified from a distance of 120-feet (36.6m).

LIGHT EMITTING DIODE (LED) PEDESTRIAN COUNTDOWN SIGNAL HEAD.

Add the following to Article 1078.02 of the Standard Specifications:

General.

1. The module shall operate in one mode: Clearance Cycle Countdown Mode Only. The countdown module shall display actual controller programmed clearance cycle and shall start counting when the flashing clearance signal turns on and shall countdown to "0" and turn off when the steady Upraised Hand (symbolizing Don't Walk) signal turns on. Module shall not have user accessible switches or controls for modification of cycle.

2. At power on, the module shall enter a single automatic learning cycle. During the automatic learning cycle, the countdown display shall remain dark.

3. The module shall re-program itself if it detects any increase or decrease of Pedestrian Timing. The counting unit will go blank once a change is detected and then take one complete pedestrian cycle (with no counter during this cycle) to adjust its buffer timer.

4. The module shall allow for consecutive cycles without displaying the steady Upraised Hand.

5. The module shall recognize preemption events and temporarily modify the crossing cycle accordingly.

6. If the controller preempts during the Walking Person (symbolizing Walk), the countdown will follow the controller's directions and will adjust from Walking Person to flashing Upraised Hand. It will start to count down during the flashing Upraised Hand.

7. If the controller preempts during the flashing Upraised Hand, the countdown will continue to count down without interruption.

8. The next cycle, following the preemption event, shall use the correct, initially programmed values.

9. If the controller output displays Upraised Hand steady condition and the unit has not arrived to zero or if both the Upraised Hand and Walking Person are dark for some reason, the unit suspends any timing and the digits will go dark.

10. The digits will go dark for one pedestrian cycle after loss of power of more than 1.5 seconds.

11. The countdown numerals shall be two (2) “7 segment” digits forming the time display utilizing two rows of LEDs.

12. The LED module shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, “Pedestrian Traffic Control Signal Indications - Part 2: LED Pedestrian Traffic Signal Modules,” or applicable successor ITE specifications, except as modified herein.

13. The LED modules shall provide constant light output under power. Modules with dimming capabilities shall have the option disabled or set on a non-dimming operation.

14. In the event of a power outage, light output from the LED modules shall cease instantaneously.

15. The LEDs utilized in the modules shall be AlInGaP technology for Portland Orange (Countdown Numerals and Upraised Hand) and GaN technology for Lunar White (Walking Person) indications.

16. The individual LEDs shall be wired such that a catastrophic loss or the failure of one or more LED will not result in the loss of the entire module.

Electrical.

1. Maximum power consumption for LED modules is 29 watts.

2. The measured chromaticity shall remain unchanged over the input line voltage range listed of 80 VAC to 135 VAC.

TRAFFIC SIGNAL BACKPLATE.

Delete 1st sentence of Article 1078.03 of the Standard Specifications and add “All backplates shall be aluminum and louvered”.

Add the following to the third paragraph of Article 1078.03 of the Standard Specifications. The reflective backplate shall not contain louvers.

Delete second sentence of the fourth paragraph of Article 1078.03 f 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.

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.

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) 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 (600 mm) by 24 inches (600 mm).

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.

ILLUMINATED STREET NAME SIGN

The illuminate street name sign shall be as follows.

(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 or a slim line type housing. 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^{o}C (-40 to +122^{o}F) for storage in the ambient temperature range of -40 to +75^{o}C (-40 to +167^{o}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.

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. A photoelectric switch shall be mounted in the control cabinet to control lighting functions for day and night display. Each sign shall be individually fused.

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^{o}C (+77^{o}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.

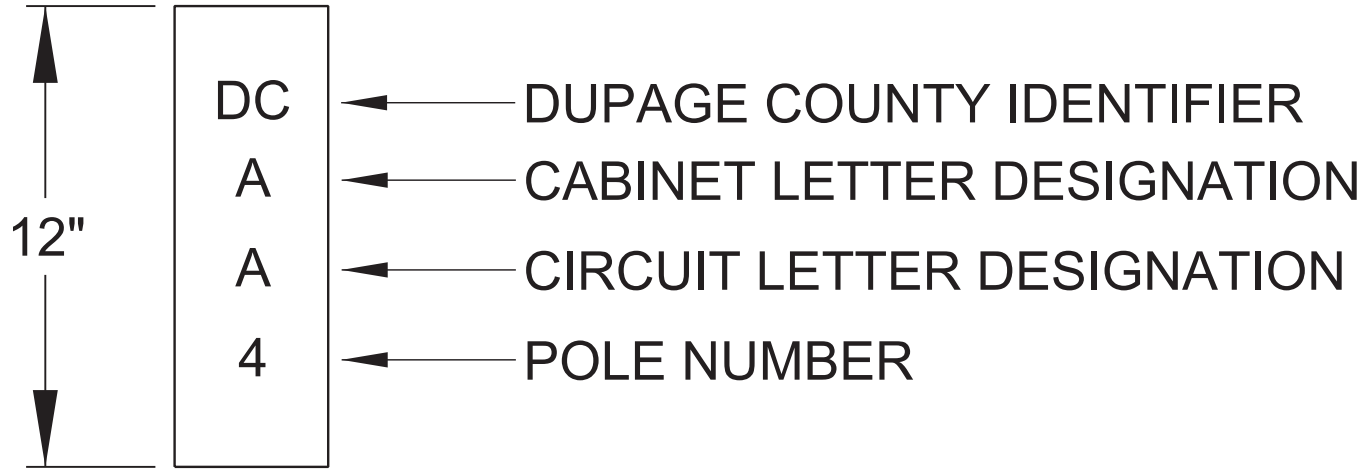
(g) Quality Assurance.

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.

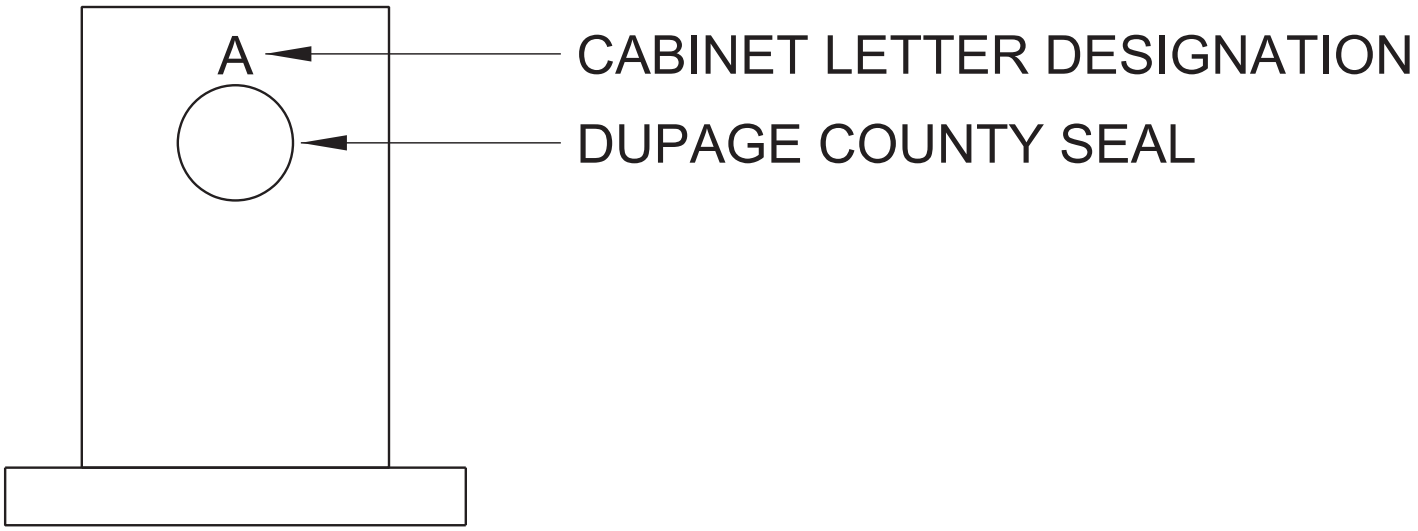
○ **STANDARD DRAWINGS**

DUPAGE COUNTY DOT LIGHTING LABEL DETAILS

POLE LABELS



CABINET LABELS

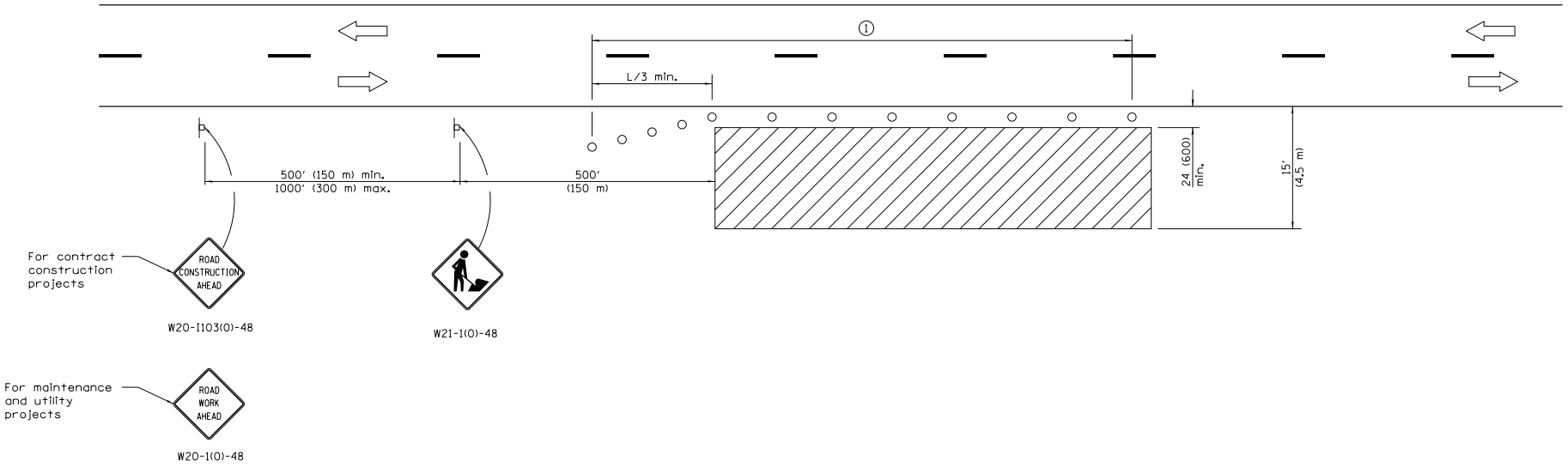


NOTES:

1.) LABELS SHALL CONSIST OF BLACK LETTERS ON A YELLOW BACKGROUND

DPCDOT

04/09/15



TYPICAL APPLICATIONS

Utility operations
Culvert extensions
Side slope changes
Guardrail installation and maintenance
Delineator installation
Landscaping operations
Shoulder repair
Sign installation and maintenance

SYMBOLS

Work area

Sign

Cone, drum or barricade

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 25′ (8 m) centers for L/3 distance, and at 50′ (15 m) centers through the remainder of the work area.

GENERAL NOTES

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 15′ (4.5 m) to 24 (600) from the edge of pavement.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	L=(W)(S)	L=0.65(W)(S)

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2014
ENGINEER OF SAFETY ENGINEERING

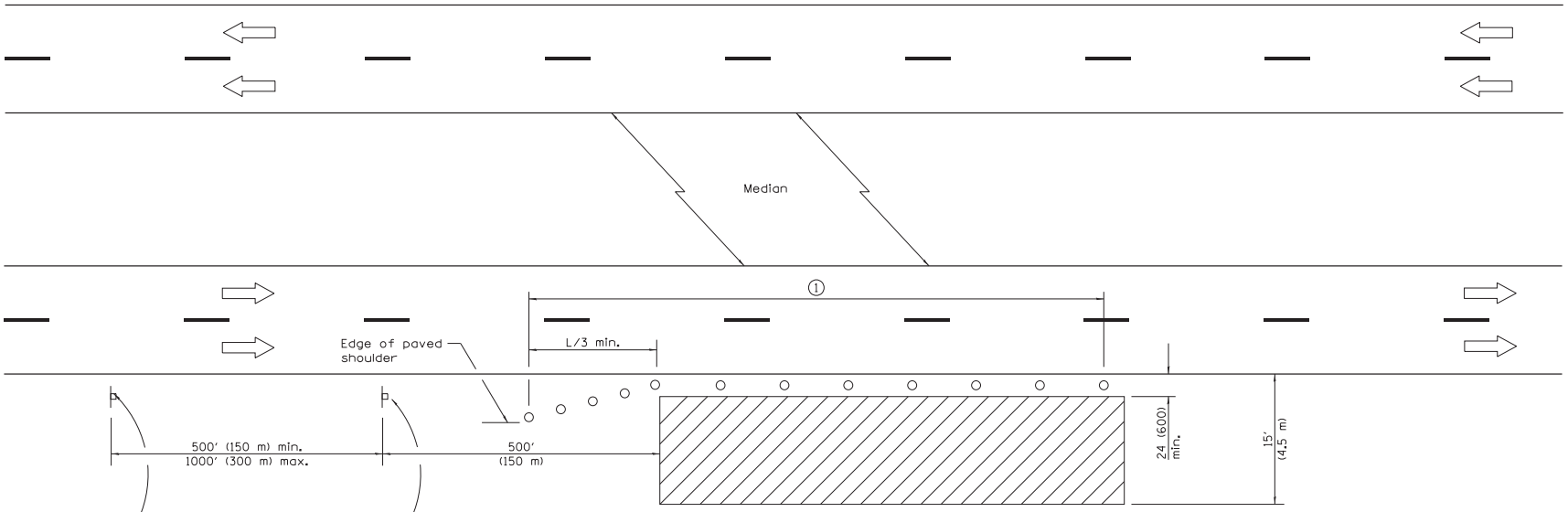
APPROVED January 1, 2014
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-14	Revised workers sign
	number to agree with
	current MUTCD.
1-1-13	Omitted text 'WORKERS'
	sign.

OFF–RD OPERATIONS, 2L, 2W, 15′ (4.5 m) TO 24″ (600 mm) FROM PAVEMENT EDGE

STANDARD 701006–05



For contract construction projects

W20-1103(0)-48

W21-1(0)-48

For maintenance and utility projects

W20-1(0)-48

TYPICAL APPLICATIONS

Utility operations
Culvert extensions
Side slope changes
Guardrail installation and maintenance
Delineator installation
Landscaping operations
Shoulder repair
Sign installation and maintenance

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 25′ (8 m) centers for L/3 distance, and at 50′ (15 m) centers through the remainder of the work area.

SYMBOLS

Work area

Sign

Cone, drum or barricade

GENERAL NOTES

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 15′ (4.5 m) to 24 (600) from the edge of pavement.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	L=(W)(S)	L=0.65(W)(S)

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

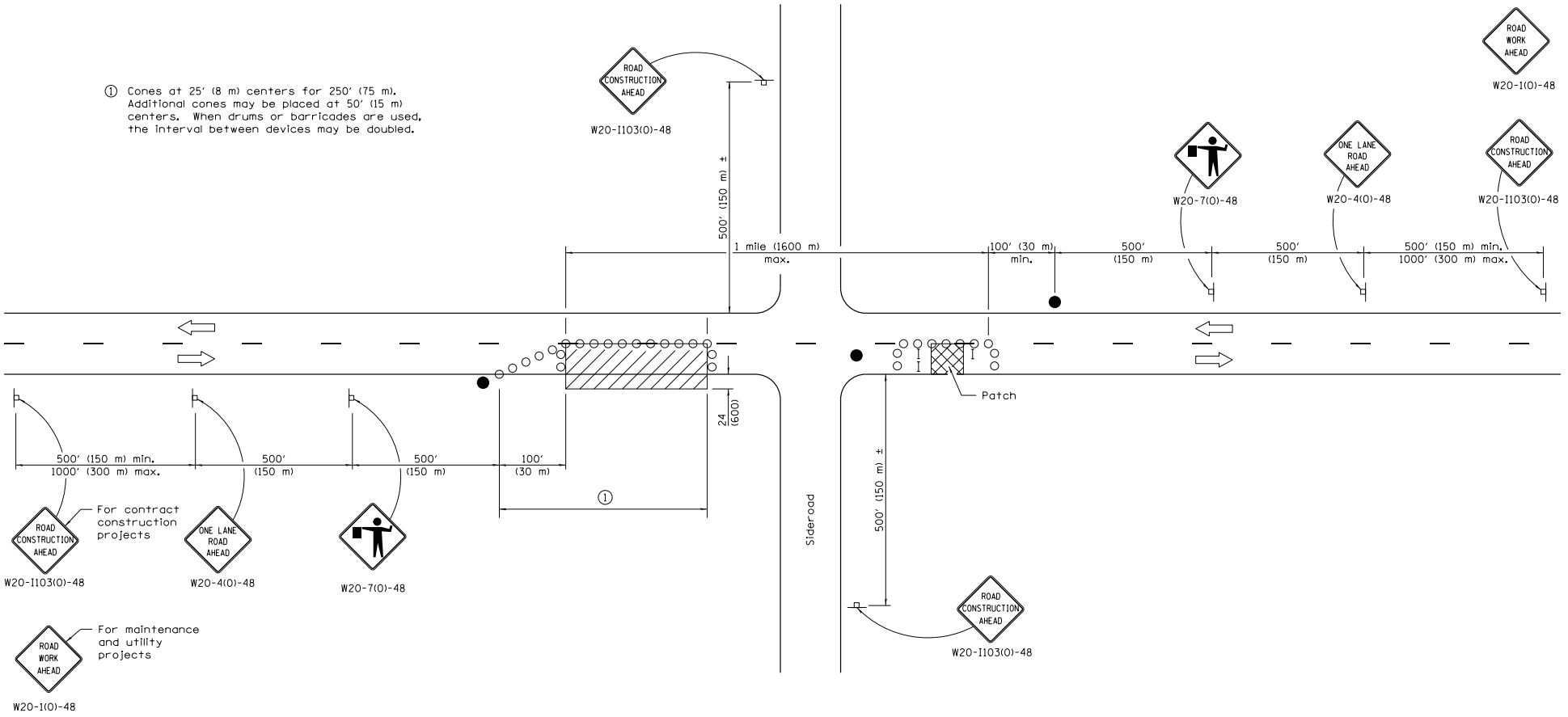
APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
4-1-16	Corrected typo in title.
1-1-14	Revised workers sign
	number to agree with
	current MUTCD.

OFF–RD OPERATIONS, MULTILANE, 15′ (4.5 m) TO 24″ (600 mm) FROM PAVEMENT EDGE

STANDARD 701101–05



TYPICAL APPLICATIONS

Isolated patching
Utility operations
Storm sewer
Culverts
Cable placement

SYMBOLS

- Work area
- Sign
- Barricade or drum
- Cone, drum or barricade
- Flagger with traffic control sign

GENERAL NOTES

This Standard is used where at any time, any vehicles, equipment, workers or their activities will encroach in the area between the center line and a line 24 (600) outside the edge of pavement for daylight operation.

When the distance between successive work areas exceeds 2000′ (600 m), additional warning signs, flaggers, and taper shall be placed as shown.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2011
ENGINEER OF SAFETY ENGINEERING

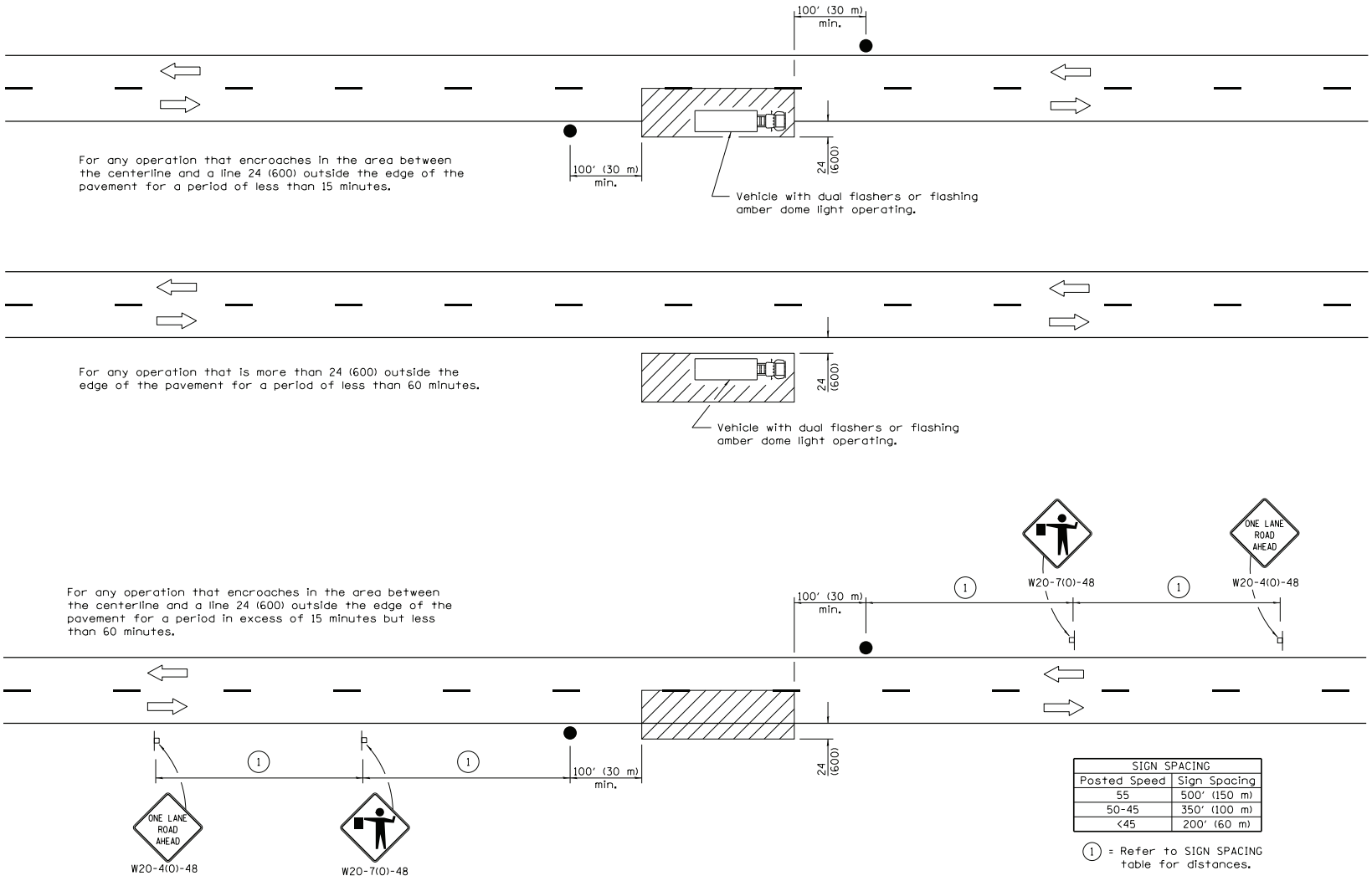
APPROVED January 1, 2011
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-11	Revised flagger sign.
1-1-09	Switched units to
	English (metric).
	Corrected sign No.'s.

LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS ≥ 45 MPH

STANDARD 701201–04



SIGN SPACING	
Posted Speed	Sign Spacing
55	500′ (150 m)
50-45	350′ (100 m)
<45	200′ (60 m)

(1) = Refer to SIGN SPACING table for distances.

TYPICAL APPLICATIONS

Marking patches
Field survey
String line
Utility operations
Cleaning up debris on pavement

SYMBOLS

Work area

Sign on portable or permanent support

Flagger with traffic control sign

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2011
ENGINEER OF SAFETY ENGINEERING

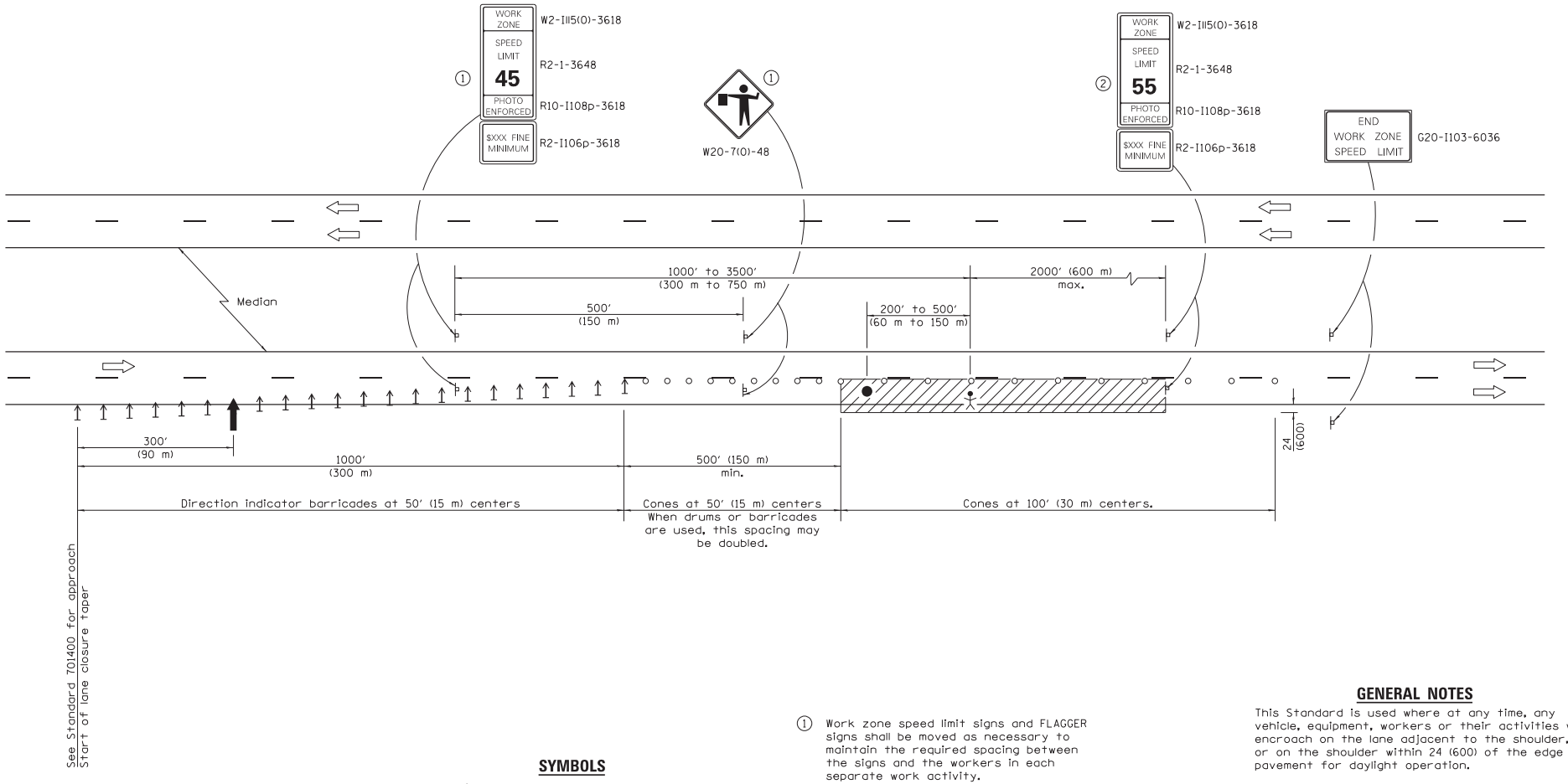
APPROVED January 1, 2011
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-11	Revised flagger sign.
1-1-09	Switched units to
	English (metric).

LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS

STANDARD 701301–04



TYPICAL APPLICATIONS

Pavement patch
Utility operations
Bituminous resurfacing

SYMBOLS

- Arrow board
- Work area
- Worker
- Sign
- Direction indicator barricade
- Cone, drum or barricade
- Flagger with traffic control sign

① Work zone speed limit signs and FLAGGER signs shall be moved as necessary to maintain the required spacing between the signs and the workers in each separate work activity.

② Work Zone Speed Limit 55 Photo Enforced sign shall be omitted when the work area dictates placement of the sign array within 500' (150 m) of the End Work Zone Speed Limit sign.

GENERAL NOTES

This Standard is used where at any time, any vehicle, equipment, workers or their activities will encroach on the lane adjacent to the shoulder, or on the shoulder within 24 (600) of the edge of pavement for daylight operation.

This Standard must always be used in combination with Standard 701400.

This Standard also applies when work is being performed in the left lane. Under these conditions, the set up would be a mirror image to what is shown.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF SAFETY PROG. AND ENGINEERING

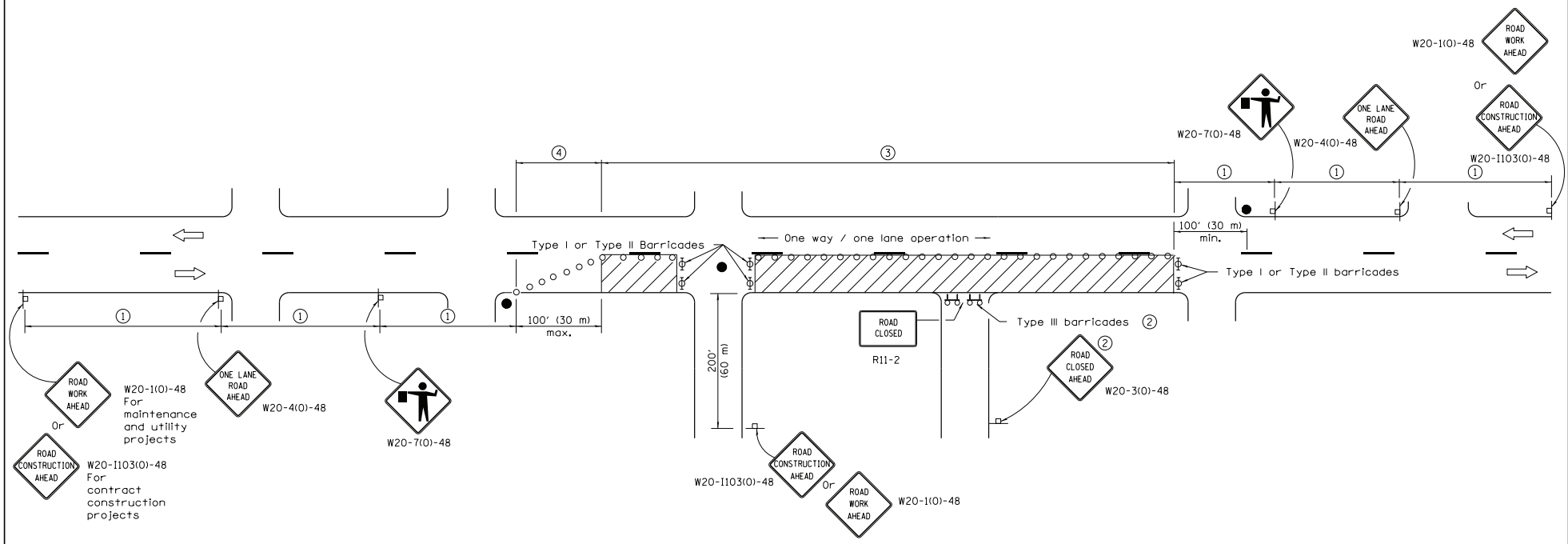
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-17	Revised END WORK ZONE
	SPEED LIMIT sign from
	orange to white background.
4-1-16	Rev. dist. between wz speed
	limit sign and worker for
	consistency with other stds.

LANE CLOSURE, FREEWAY/EXPRESSWAY, DAY OPERATIONS ONLY

STANDARD 701406-11



SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

SYMBOLS

- Work area
- Cone, drum or barricade (not required for moving operations)
- Sign on portable or permanent support
- Flagger with traffic control sign
- Barricade or drum with flashing light
- Type III barricade with flashing lights

1. Refer to SIGN SPACING TABLE for distances.
2. For approved sideroad closures.
3. Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or Type I or Type II barricades are used, the interval between devices may be doubled.
4. Cones, drums or barricades at 20' (6 m) centers.

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement requiring the closure of one traffic lane in an urban area.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

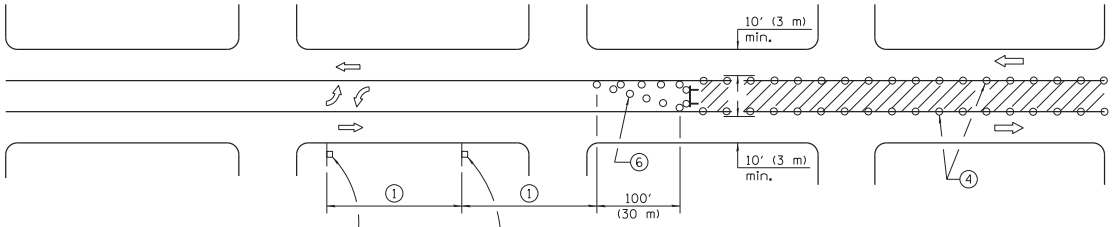
APPROVED January 1, 2011
ENGINEER OF SAFETY ENGINEERING
APPROVED January 1, 2011
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-11	Revised flagger sign.
1-1-09	Switched units to
	English (metric).
	Corrected sign No.'s.

URBAN LANE CLOSURE, 2L, 2W, UNDIVIDED

STANDARD 701501-06



CASE I

(Signs required for both directions)

SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

SYMBOLS

- Work area
- Barricade or drum with flashing light
- Flagger with traffic control sign
- Cone, drum or barricade (Cones for daytime use only)
- Sign on portable or permanent support
- Type III barricade with flashing lights

1. Refer to SIGN SPACING TABLE for distances.
2. Required for speeds > 40 mph (70 km/h).
3. Required if work exceeds 500' (164 m) or 1 block.
4. Cones at 25' (8 m) centers for 250' (75 m) on approach. Additional cones may be placed at 50' (15 m) centers. When drums or type I or II barricades are used, the interval between devices may be doubled.
5. For approved sideroad closures.
6. Cones, drums or barricades at 20' (6 m) centers in taper.
7. Use flagger sign only when flagger is present.

GENERAL NOTES

This Standard is used to close one lane of an urban, two lane, two way roadway with a bidirectional turn lane.

Case I applies when no workers are present. When workers are present, two lanes shall be closed and traffic control shall be according to Standard 701501.

Calculate L as follows:

SPEED LIMIT	FORMULAS English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	L=(W)(S)	L=0.65(W)(S)

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

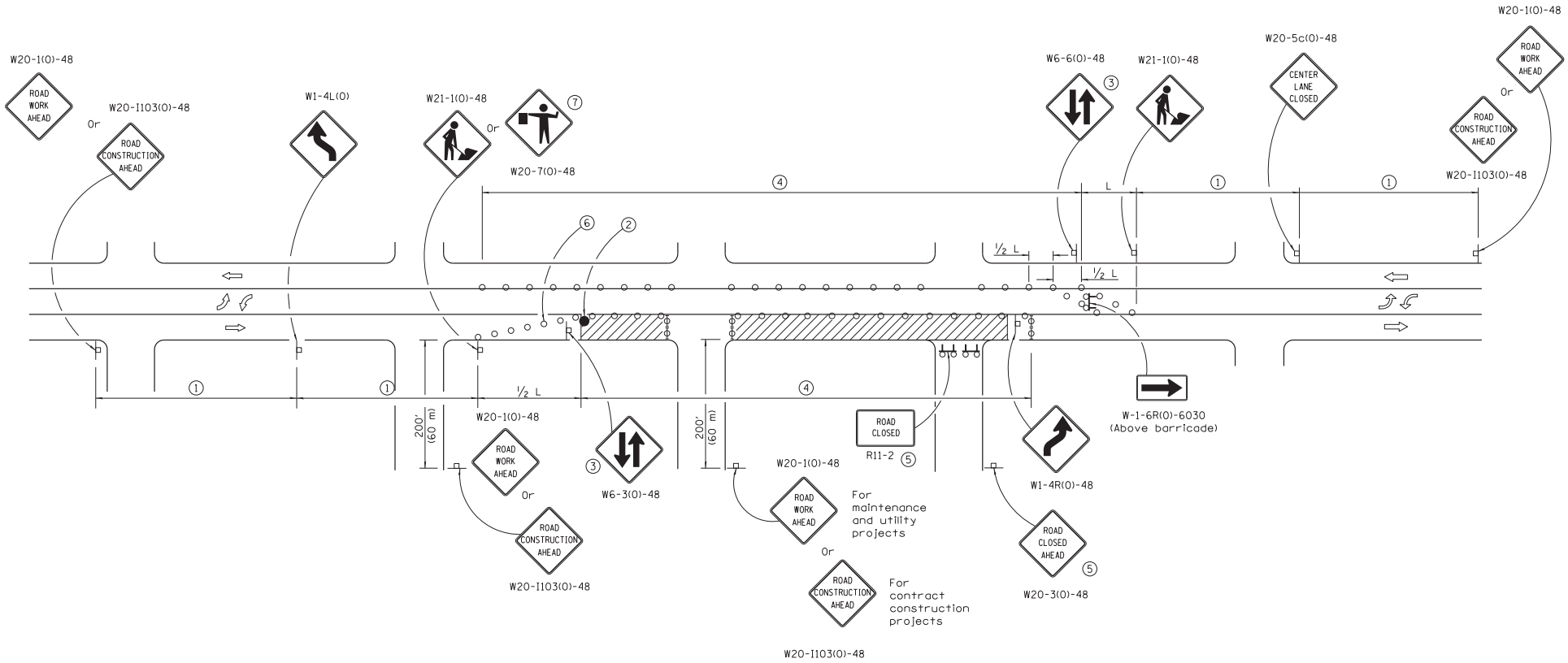
ISSUED 1-1-10

DATE	REVISIONS
1-1-17	Added flashing lights to Type III barr. Revised dev. & sign spacing, TWLTL taper length.
1-1-14	Omitted original note (4). Rev. workers sign no. to agree with current MUTCD.

URBAN LANE CLOSURE, 2L, 2W, WITH BIDIRECTIONAL LEFT TURN LANE

(Sheet 1 of 2)

STANDARD 701502-07



CASE II

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF SAFETY PROG. AND ENGINEERING

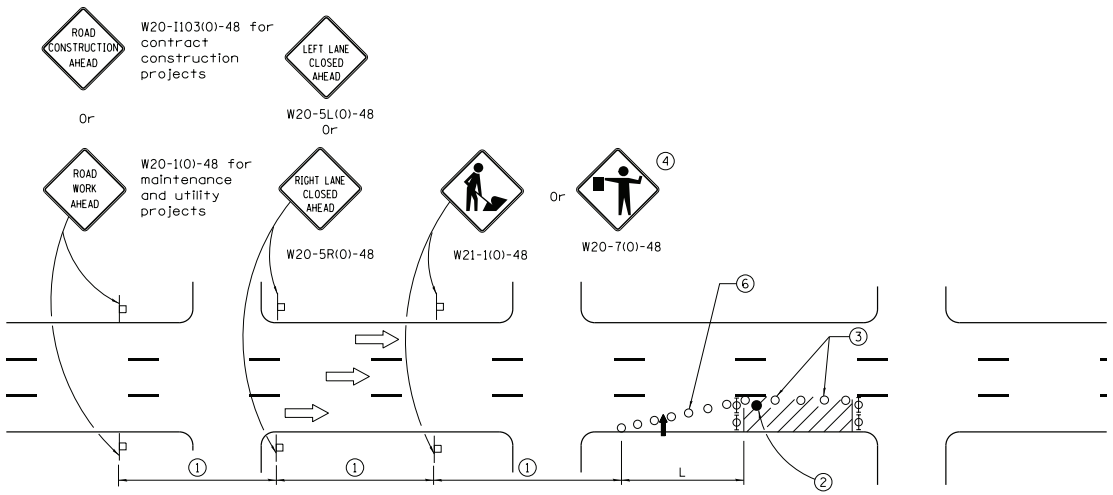
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-01

URBAN LANE CLOSURE, 2L, 2W, WITH BIDIRECTIONAL LEFT TURN LANE

(Sheet 2 of 2)

STANDARD 701502–07



SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

SYMBOLS

- Arrow board
- Cone, drum or barricade
- Sign on portable or permanent support
- Work area
- Barricade or drum with flashing light
- Type III barricade with flashing lights
- Flagger with traffic control sign.

(1) Refer to SIGN SPACING TABLE for distances.

(2) Required for speeds > 40 MPH

(3) Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or Type I or Type II barricades are used, the interval between devices may be doubled.

(4) Use flagger sign only when flagger is present.

(5) For approved sideroad closures.

(6) Cones, drums or barricades at 20' (6 m) in taper.

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement during shoulder operations or where construction requires lane closures in urban areas.

Calculate L as follows:

SPEED LIMIT	FORMULAS English	FORMULAS (Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	L=(W)(S)	L=0.65(W)(S)

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2014
ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2014
ENGINEER OF DESIGN AND ENVIRONMENT

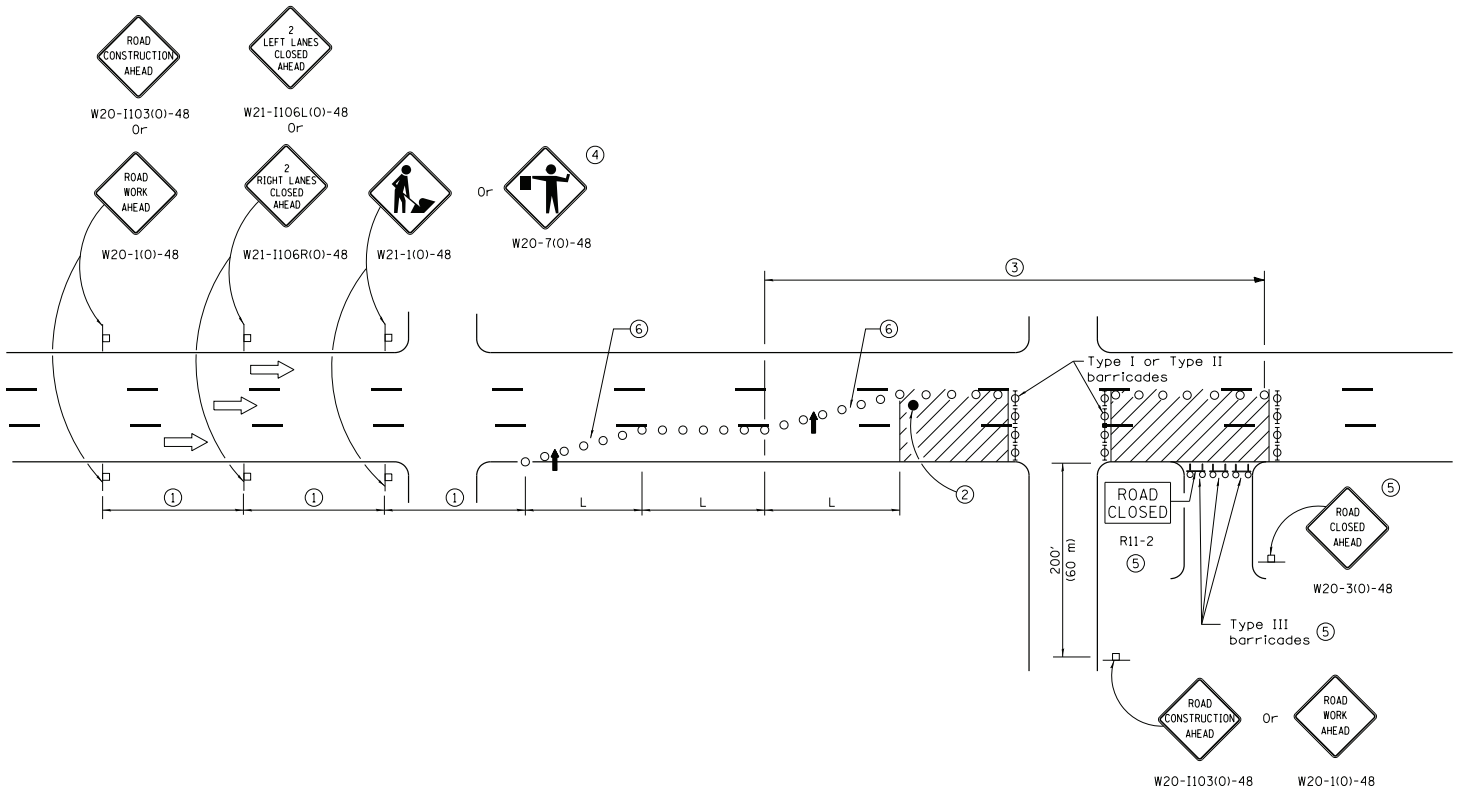
ISSUED 1-1-97

DATE	REVISIONS
1-1-14	Revised workers sign
	number to agree with
	current MUTCD.
1-1-13	Omitted text 'WORKERS'
	sign.

URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN

(Sheet 1 of 2)

STANDARD 701601–09



Illinois Department of Transportation

APPROVED January 1. 2014
ENGINEER OF SAFETY ENGINEERING

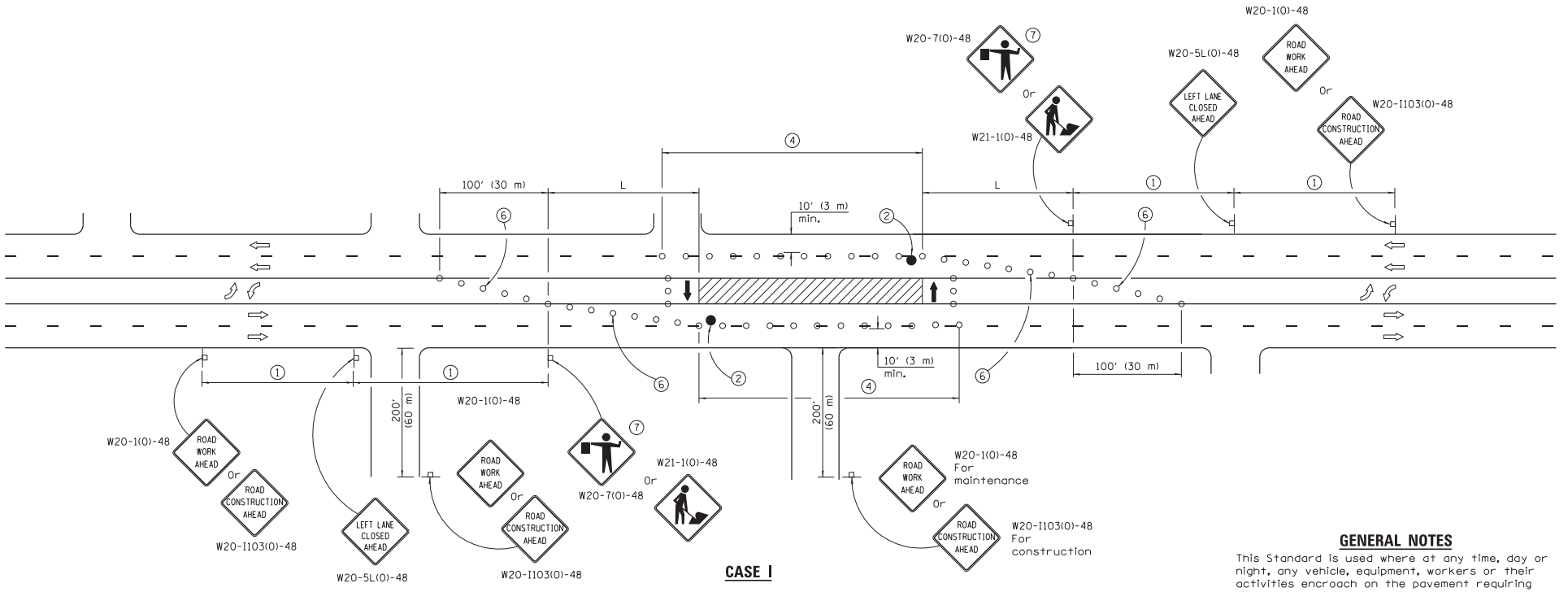
APPROVED January 1. 2014
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN

(Sheet 2 of 2)

STANDARD 701601–09



SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

SYMBOLS

- Arrow board
- Work area
- Barricade or drum with steady burning mondirectional light
- Flagger with traffic control sign
- Cone, drum or barricade (Cones for daytime use only)
- Sign on portable or permanent support
- Type III barricade with flashing lights

CASE I

1. Refer to SIGN SPACING TABLE for distances.
2. Required for speeds > 40 mph (70 km/h).
3. Required if work exceeds 500' (164 m) or 1 block, repeat every 1 mile (1.6 km).
4. Cones at 25' (8 m) centers for 250' (75 m) on approach. Additional cones may be placed at 50' (15 m) centers. When drums or type I or II barricades are used, the interval between devices may be doubled.
5. For approved sideroad closures.
6. Cones, drums or barricades at 20' (6 m) centers in taper.
7. Use flagger sign only when flagger is present.

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement requiring the closure of one traffic lane in an Urban area.

If the work operation is performed between 9:00 a.m. and 3:00 p.m. and does not exceed 15 min. Traffic protection shall be as shown for Standard 701426.

Calculate L as follows:

SPEED LIMIT	FORMULAS English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	L=(W)(S)	L=0.65(W)(S)

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

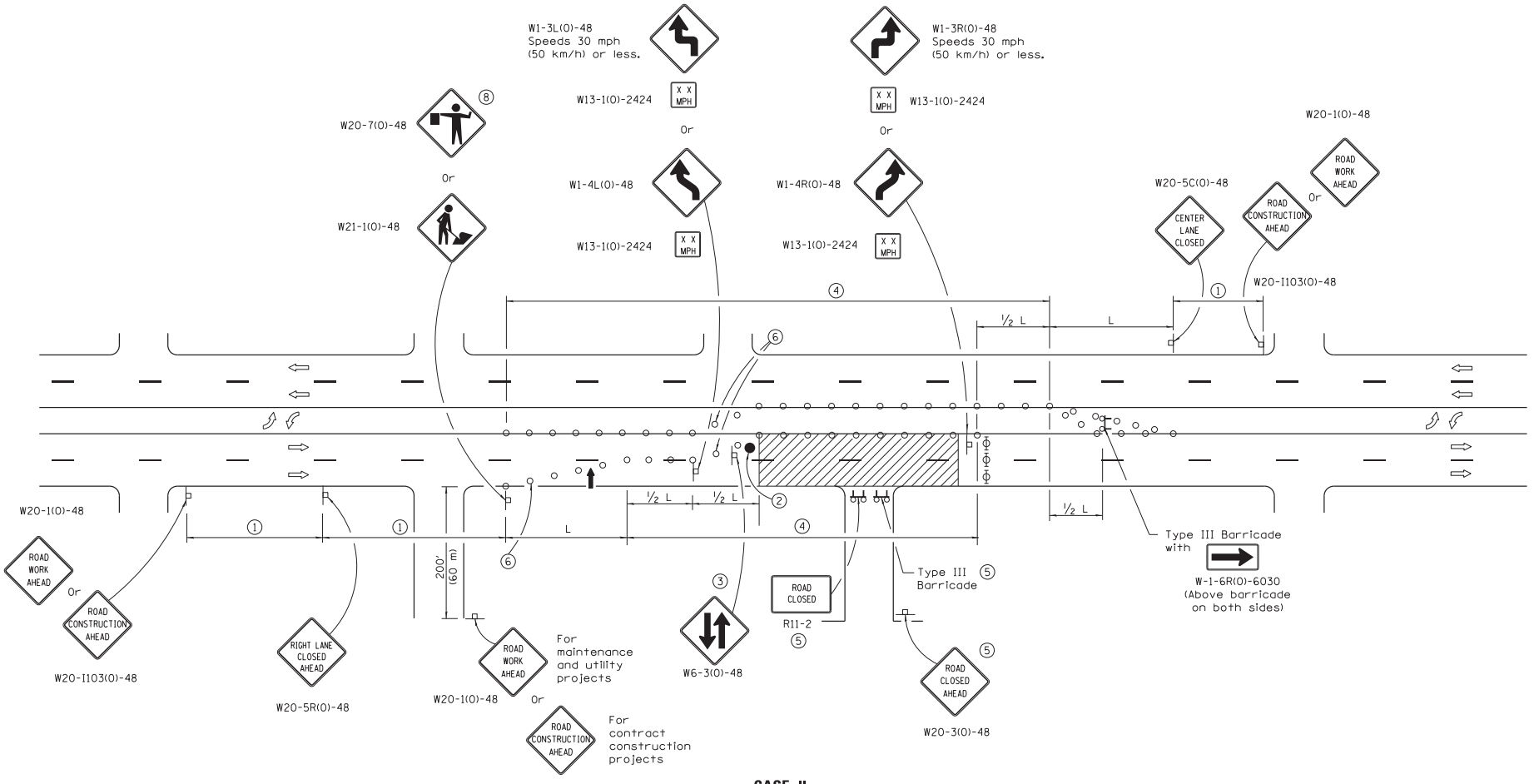
ISSUED 1-1-01

DATE	REVISIONS
1-1-17	Added flashing lights to Type III barr. Revised dev. & sign spacing, TWLTL taper length.
1-1-14	Omitted original note (4).
	Rev. workers sign no. to agree with current MUTCD.

URBAN LANE CLOSURE, MULTILANE, 2W WITH BIDIRECTIONAL LEFT TURN LANE

(Sheet 1 of 4)

STANDARD 701602–08



CASE II

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF SAFETY PROG. AND ENGINEERING

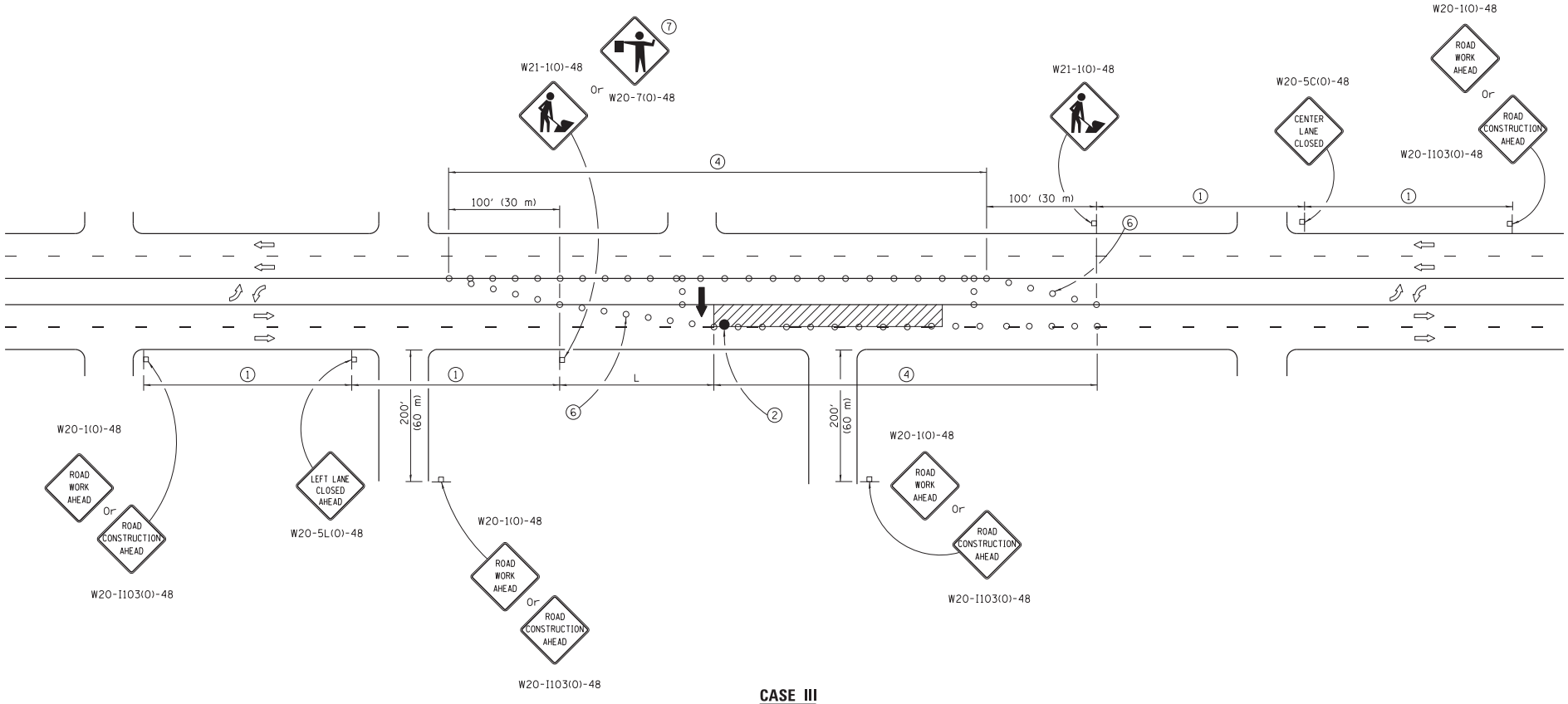
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-01

URBAN LANE CLOSURE, MULTILANE, 2W WITH BIDIRECTIONAL LEFT TURN LANE

(Sheet 2 of 4)

STANDARD 701602–08



CASE III

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF SAFETY PROG. AND ENGINEERING

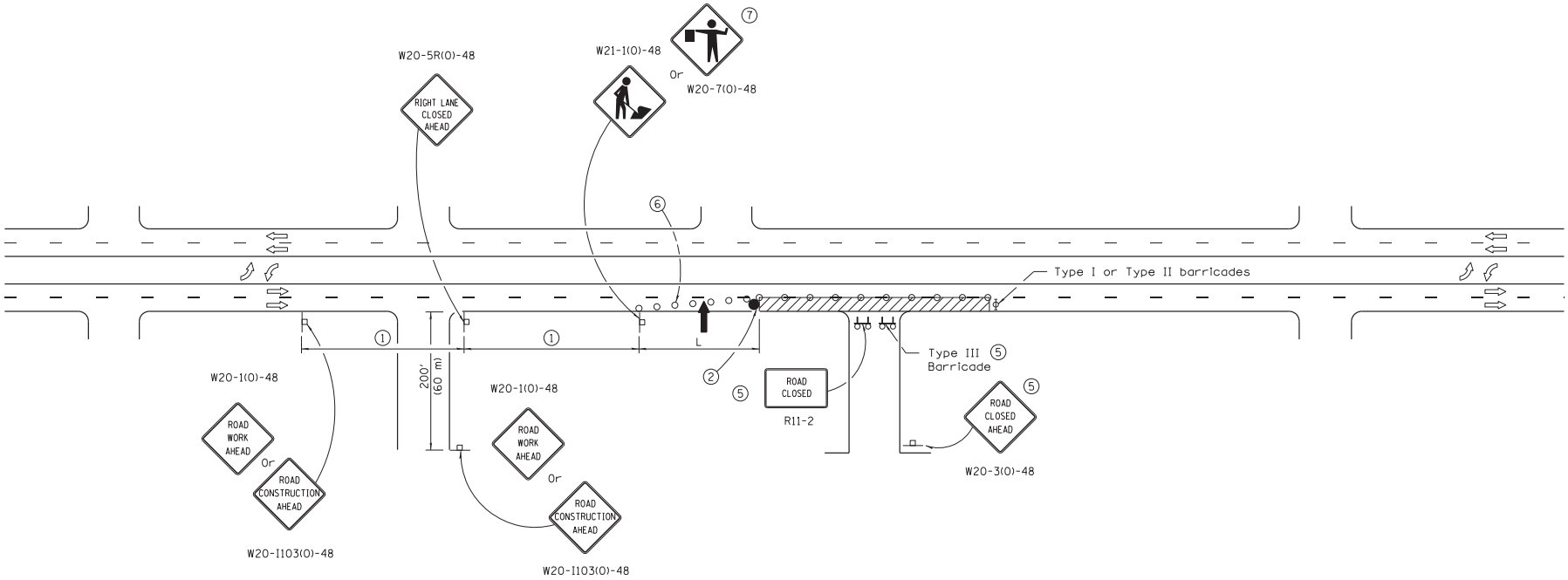
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-01

URBAN LANE CLOSURE, MULTILANE, 2W WITH BIDIRECTIONAL LEFT TURN LANE

(Sheet 3 of 4)

STANDARD 701602–08



CASE IV

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF SAFETY PROG. AND ENGINEERING

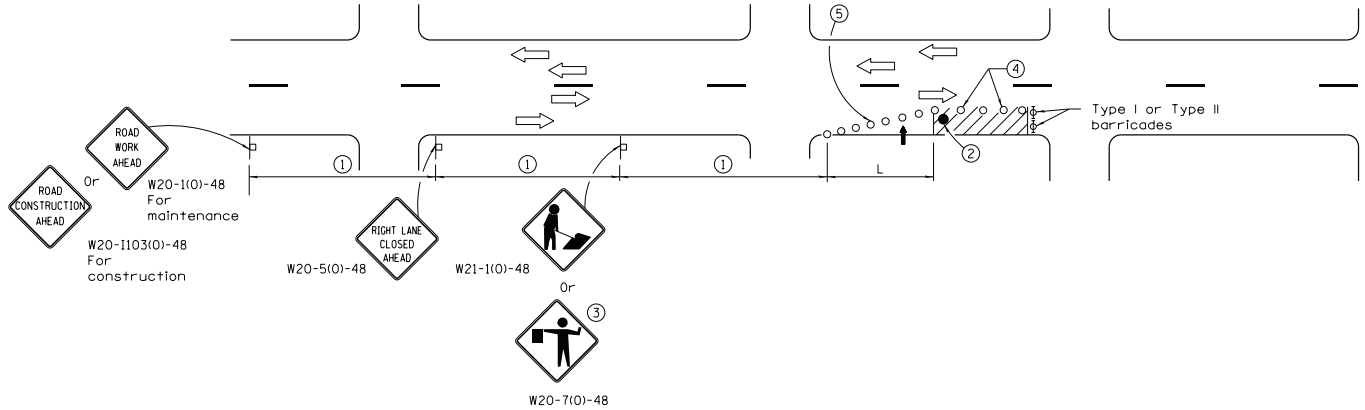
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-01

URBAN LANE CLOSURE, MULTILANE, 2W WITH BIDIRECTIONAL LEFT TURN LANE

(Sheet 4 of 4)

STANDARD 701602–08



SIGN SPACING	
Posted Speed	Sign Spacing
55	500′ (150 m)
50-45	350′ (100 m)
<45	200′ (60 m)

SYMBOLS

- Arrow board
- Cone, drum or barricade
- Sign on portable or permanent support
- Work area
- Barricade or drum with flashing light
- Flagger with traffic control sign.

1. Refer to SIGN SPACING TABLE for distances.
2. Required for speeds > 40 mph.
3. Use flagger sign only when flagger is present.
4. Cones at 25′ (8 m) centers for 250′ (75 m). Additional cones may be placed at 50′ (15 m) centers. When drums or Type I or Type II barricades are used, the interval between devices may be doubled.
5. Cones, drums or barricades at 20′ (6 m) centers in taper.

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement requiring the closure of one traffic lane in an Urban area.

Calculate L as follows:

SPEED LIMIT	FORMULAS English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	L=(W)(S)	L=0.65(W)(S)

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1. 2015
ENGINEER OF SAFETY ENGINEERING

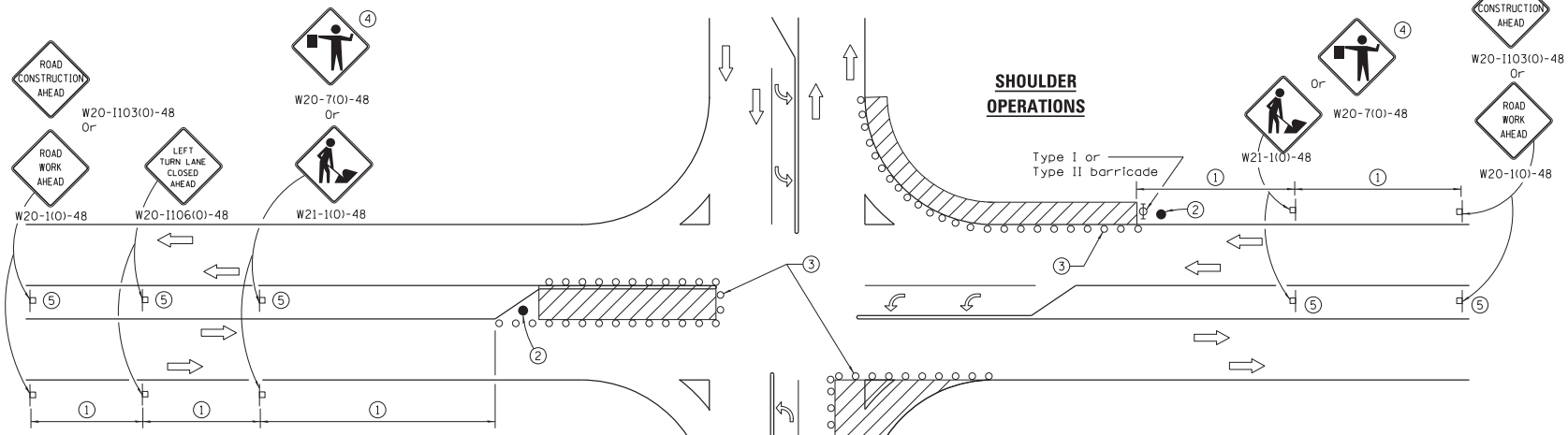
APPROVED January 1. 2015
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-15	Renamed standard. Moved
	case on Sheet 2 to new
	Highway Standard.
1-1-14	Revised workers sign
	number to agree with
	current MUTCD.

URBAN SINGLE LANE CLOSURE, MULTILANE, 2W WITH MOUNTABLE MEDIAN

STANDARD 701606–10



LEFT TURN LANE OR CENTER MEDIAN OPERATIONS

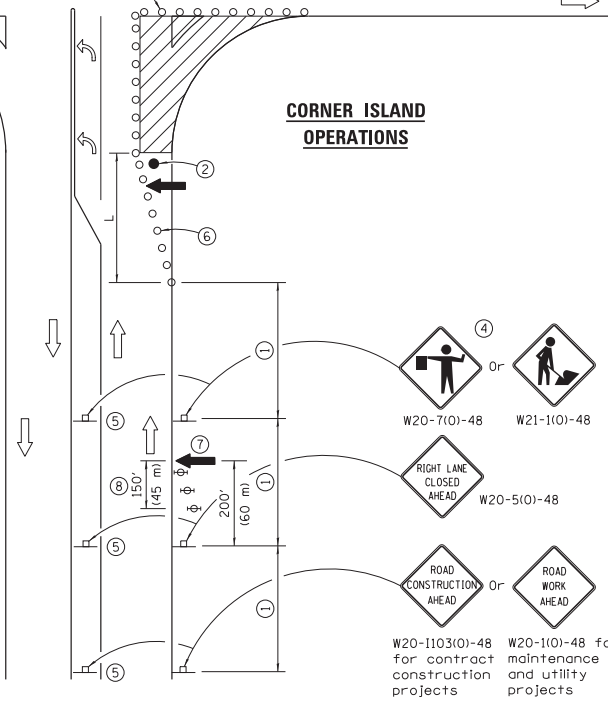
1. Refer to SIGN SPACING TABLE for distance.
2. Required for speed > 40 mph.
3. Cones at 25′ (8 m) centers for 250′ (75 m). Additional cones may be placed at 50′ (15 m) centers. When drums or Type I or Type II barricades are used, the interval between devices may be doubled.
4. Use flagger sign only when flagger is present.
5. Omit this sign when median is less than 10′ (3 m) or for bi-directional turn lanes.
6. Cones, drums or barricades at 20′ (6 m) centers in taper.
7. Advanced arrow board required for speeds > 45 mph.
8. Three Type II barricades, drums or vertical barricades at 50′ (15 m) centers.

SIGN SPACING	
Posted Speed	Sign Spacing
55	500′ (150 m)
50-45	350′ (100 m)
<45	200′ (60 m)

SYMBOLS

- Work area
- Cone, drum or barricade
- Sign on portable or permanent support
- Arrow board
- Barricade or drum with flashing light
- Flagger with traffic control sign

CORNER ISLAND OPERATIONS



GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement during shoulder operations or where construction requires lane closures in an urban area.

Calculate L as follows:

SPEED LIMIT	FORMULAS English	(Metric)
40 mph (70 km/h) or less:	$L=\frac{WS^2}{60}$	$L=\frac{WS^2}{150}$
45 mph (80 km/h) or greater:	L=(W)(S)	L=0.65(W)(S)

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

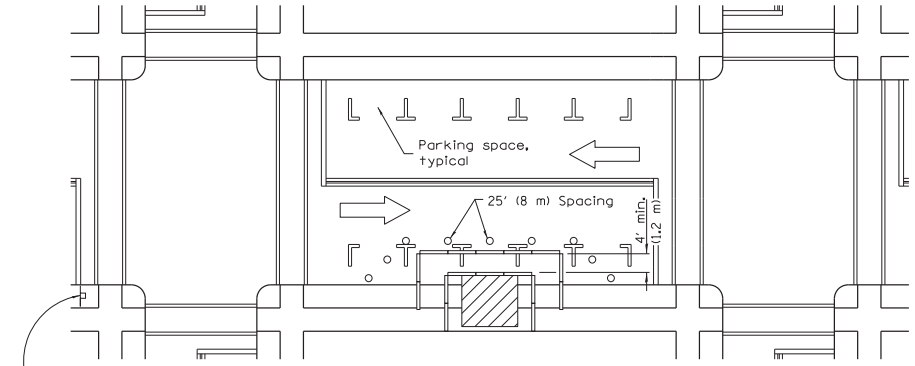
APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
4-1-16	Corrected sign number for
	LEFT TURN LANE CLOSED
	AHEAD.
1-1-14	Added devices at arrow
	board upstream from taper.
	Rev. workers sign number.

URBAN LANE CLOSURE, MULTILANE INTERSECTION

STANDARD 701701–10



① ROAD CONSTRUCTION AHEAD — W20-1103(0)-48 for contract construction projects

Or

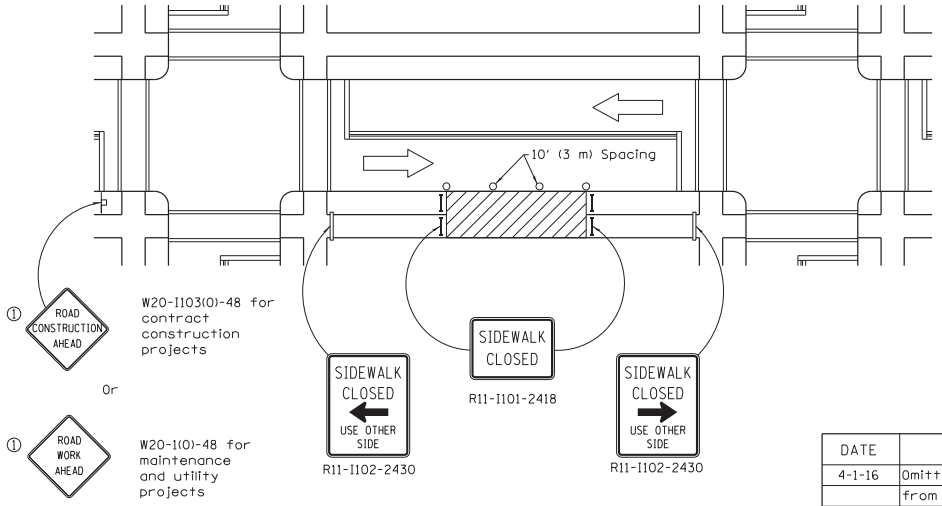
① ROAD WORK AHEAD — W20-1(0)-48 for maintenance and utility projects

SIDEWALK DIVERSION

① Omit whenever duplicated by road work traffic control.

SYMBOLS

- Work area
- Sign on portable or permanent support
- Barricade or drum
- Cone, drum or barricade
- Type III barricade
- Detectable pedestrian channelizing barricade



① ROAD CONSTRUCTION AHEAD — W20-1103(0)-48 for contract construction projects

Or

① ROAD WORK AHEAD — W20-1(0)-48 for maintenance and utility projects

SIDEWALK CLOSURE

GENERAL NOTES

This Standard is used where, at any time, pedestrian traffic must be rerouted due to work being performed.

This Standard must be used in conjunction with other Traffic Control & Protection Standards when roadway traffic is affected.

Temporary facilities shall be detectable and accessible.

The temporary pedestrian facilities shall be provided on the same side of the closed facilities whenever possible.

The SIDEWALK CLOSED / USE OTHER SIDE sign shall be placed at the nearest crosswalk or intersection to each end of the closure. Where the closure occurs at a corner, the signs shall be erected on the corners across the street from the closure. The SIDEWALK CLOSED signs shall be used at the ends of the actual closures.

Type III barricades and R11-2-4830 signs shall be positioned as shown in "ROAD CLOSED TO ALL TRAFFIC" detail on Standard 701901.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

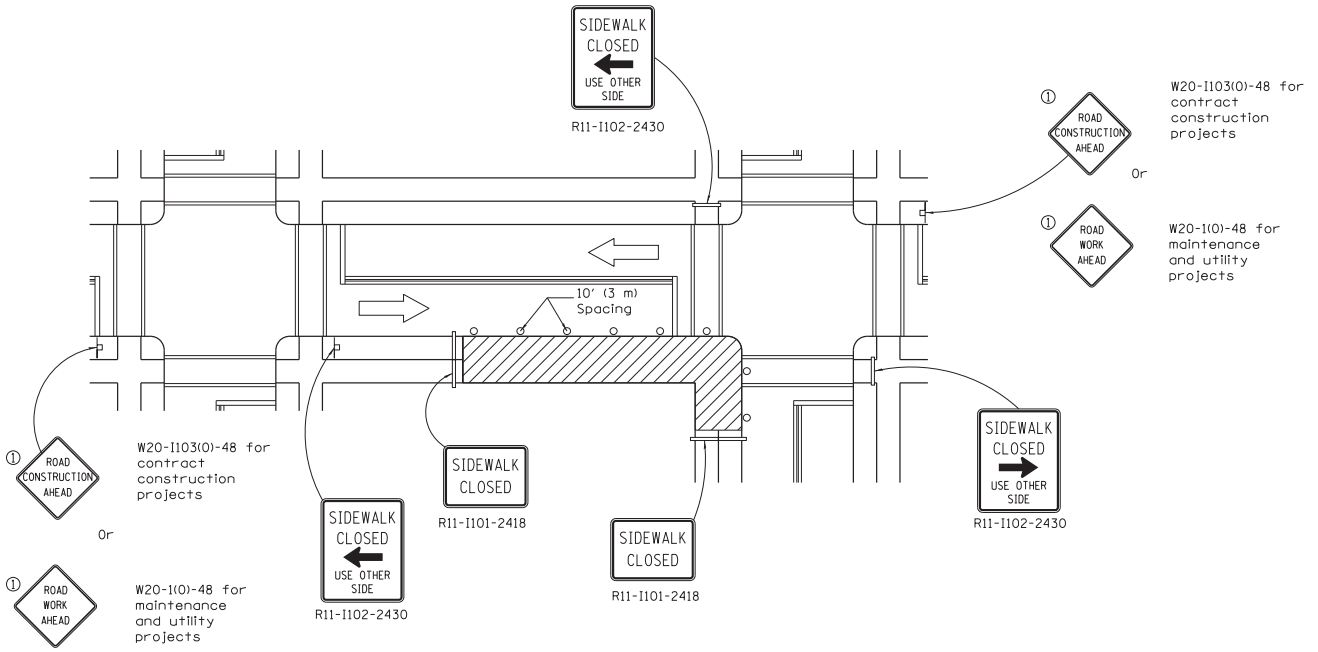
ISSUED 1-1-97

DATE	REVISIONS
4-1-16	Omitted orange safety fence
	from standard as this is
	covered in the std. spec.
1-1-12	Added SIDEWALK DIVERSION.
	Modified appearance of
	plan views. Renamed Std.

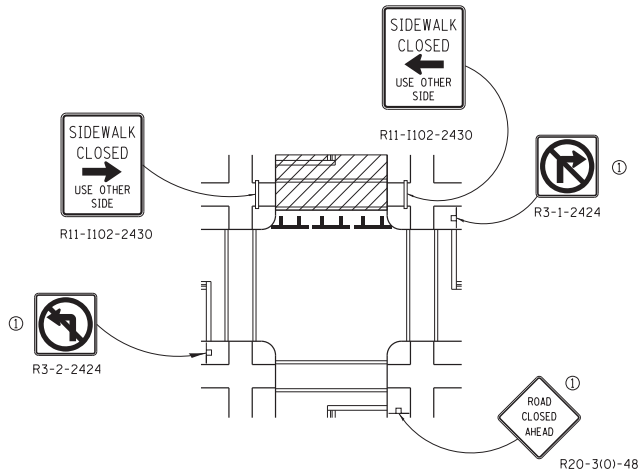
SIDEWALK, CORNER OR CROSSWALK CLOSURE

(Sheet 1 of 2)

STANDARD 701801–06



CORNER CLOSURE



CROSSWALK CLOSURE

Illinois Department of Transportation

APPROVED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

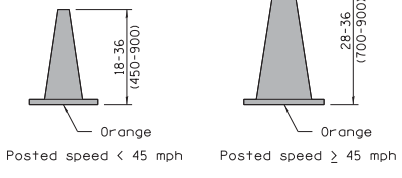
APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

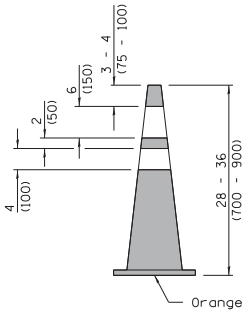
SIDEWALK, CORNER OR CROSSWALK CLOSURE

(Sheet 2 of 2)

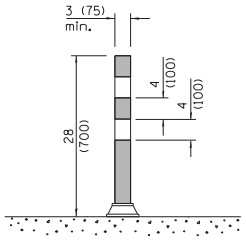
STANDARD 701801–06



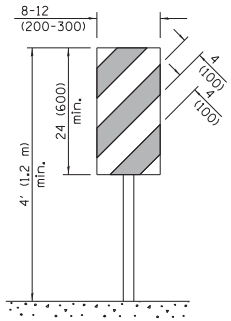
CONE FOR DAYTIME



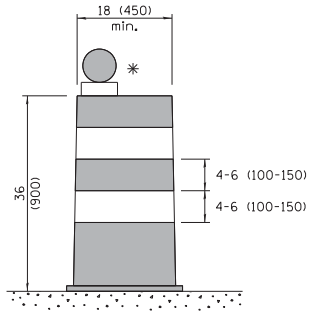
REFLECTORIZED CONE FOR NIGHTTIME



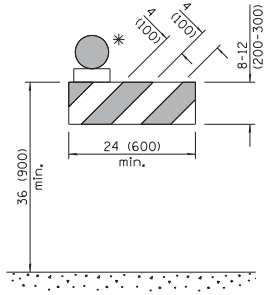
TUBULAR MARKER



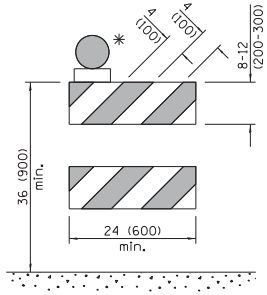
VERTICAL PANEL
POST MOUNTED



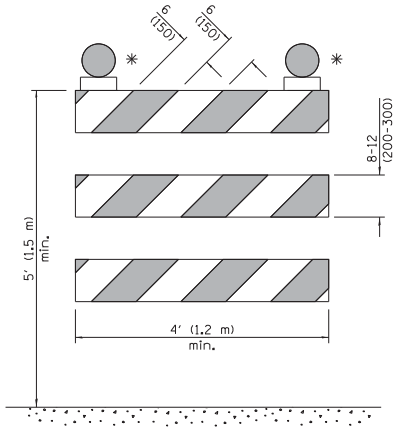
DRUM



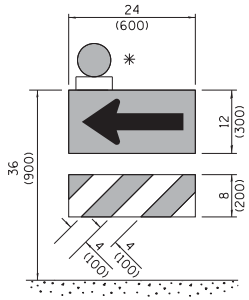
TYPE I BARRICADE



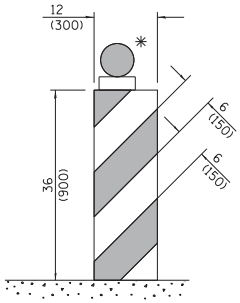
TYPE II BARRICADE



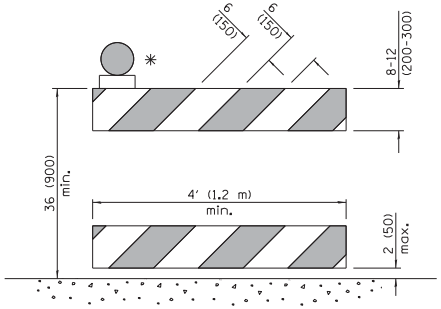
TYPE III BARRICADE



DIRECTION INDICATOR BARRICADE



VERTICAL BARRICADE



DETECTABLE PEDESTRIAN CHANNELIZING BARRICADE

✳ Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF OPERATIONS

APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

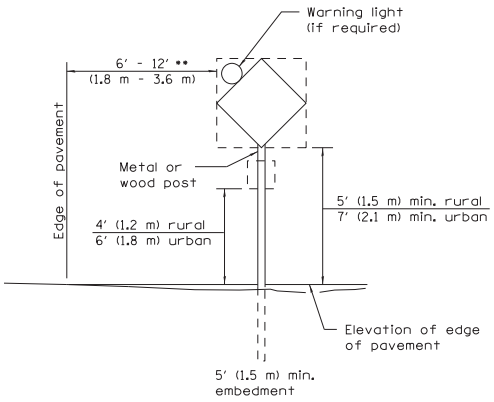
ISSUED 1-1-97

DATE	REVISIONS
1-1-17	Changed FLEXIBLE DELINEATOR
	to TUBULAR MARKER.
4-1-16	Add dim's to barricades. Rev.
	note for post mnt. signs.
	Rev. cone dtls. Add W12-1103.

TRAFFIC CONTROL DEVICES

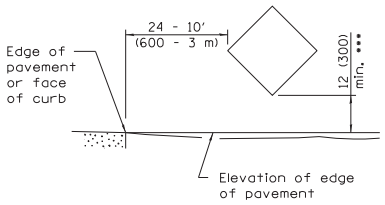
(Sheet 1 of 3)

STANDARD 701901-06



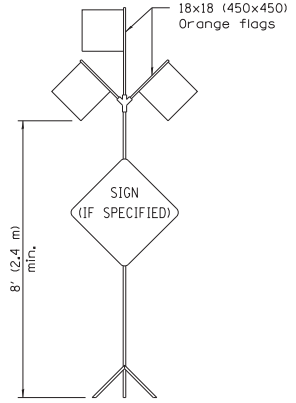
POST MOUNTED SIGNS

•• When curb or paved shoulder are present this dimension shall be 24 (600) to the face of curb or 6' (1.8 m) to the outside edge of the paved shoulder.



SIGNS ON TEMPORARY SUPPORTS

••• When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located behind other devices, the height shall be sufficient to be seen completely above the devices.



HIGH LEVEL WARNING DEVICE

G20-I104(0)-6036 G20-I105(0)-6024

This signing is required for all projects 2 miles (3200 m) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 500' (150 m) in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 2 miles (3200 m).

Dual sign displays shall be utilized on multi-lane highways.

WORK LIMIT SIGNING

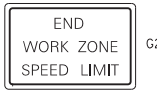
W21-I115(0)-3618

R2-1-3648

R10-I108p-3618 ••••

R2-I106p-3618

Sign assembly as shown on Standards or as allowed by District Operations.

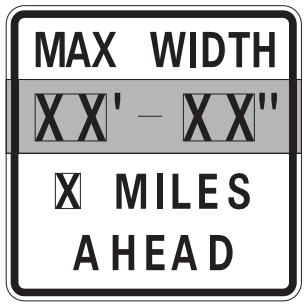


G20-I103(0)-6036

This sign shall be used when the above sign assembly is used.

HIGHWAY CONSTRUCTION SPEED ZONE SIGNS

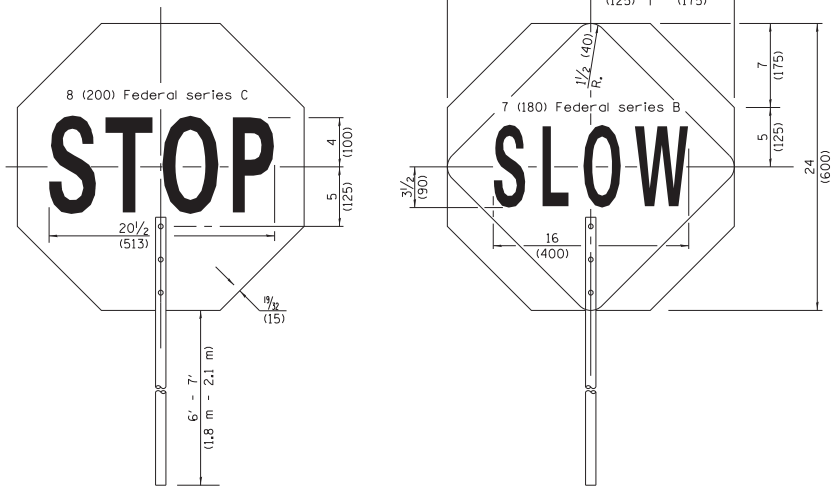
•••• R10-I108p shall only be used along roadways under the juristiction of the State.



W12-I103-4848

WIDTH RESTRICTION SIGN

XX'-XX" width and X miles are variable.



FRONT SIDE REVERSE SIDE

FLAGGER TRAFFIC CONTROL SIGN

Illinois Department of Transportation

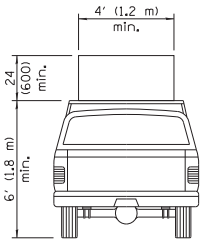
APPROVED January 1, 2017
ENGINEER OF OPERATIONS

APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

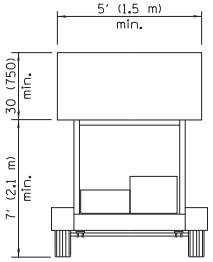
ISSUED 1-1-97

TRAFFIC CONTROL DEVICES

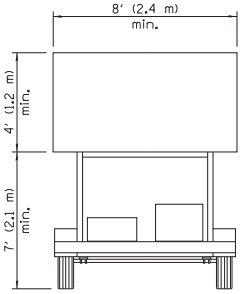
STANDARD 701901–06



TYPE A ROOF MOUNTED

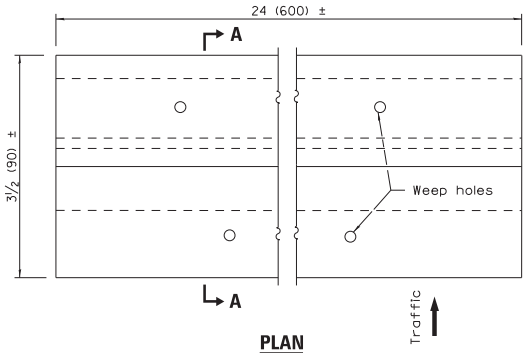


TYPE B ROOF OR TRAILER MOUNTED

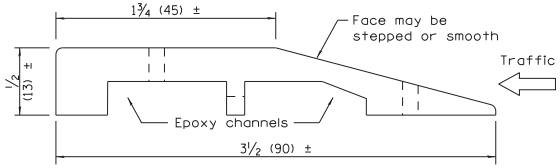


TYPE C TRAILER MOUNTED

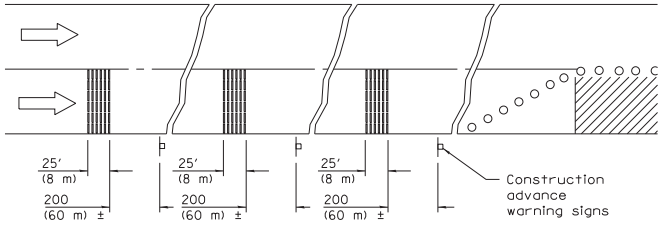
ARROW BOARDS

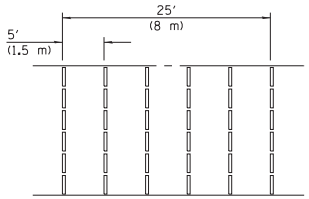


PLAN



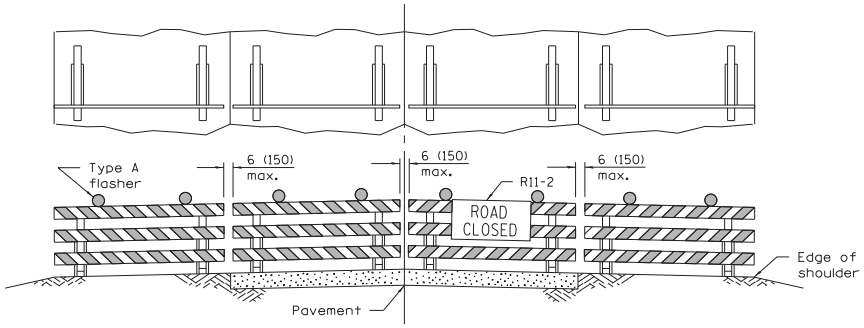
SECTION A–A





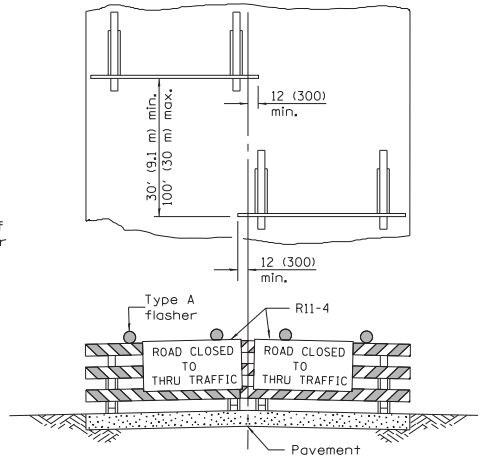
TYPICAL INSTALLATION

TEMPORARY RUMBLE STRIPS



ROAD CLOSED TO ALL TRAFFIC

Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.



ROAD CLOSED TO THRU TRAFFIC

Reflectorized striping shall appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF OPERATIONS

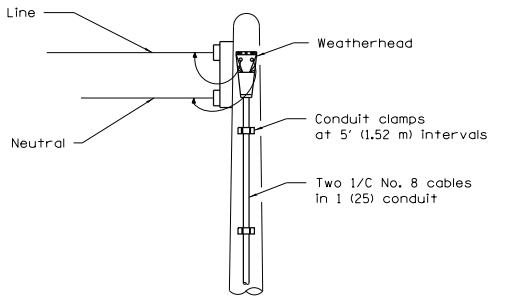
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

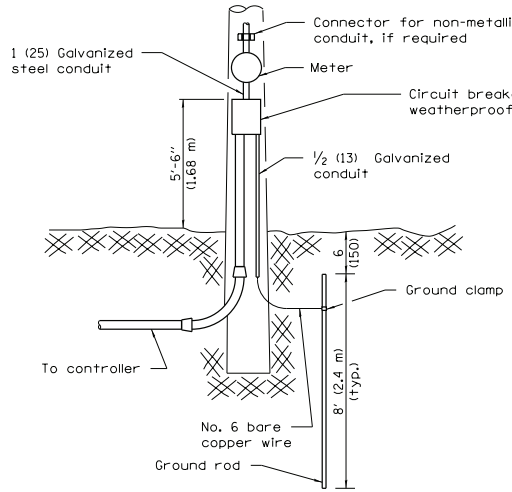
ISSUED 1-1-97

TRAFFIC CONTROL DEVICES

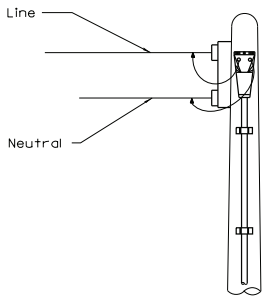
(Sheet 3 of 3)

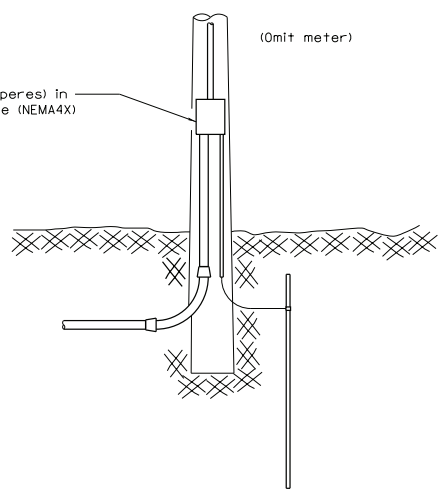
STANDARD 701901–06





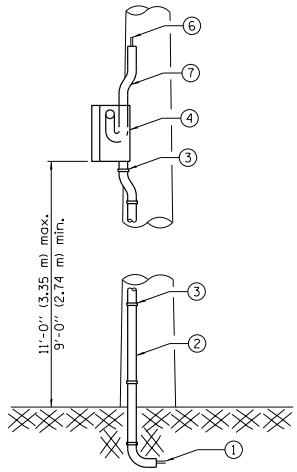
TYPE A





TYPE B

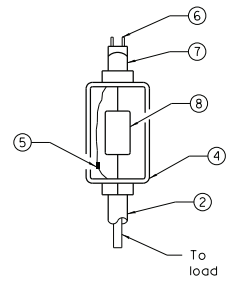
Except for the changes noted below, details for TYPE A and TYPE B service installations shall correspond.

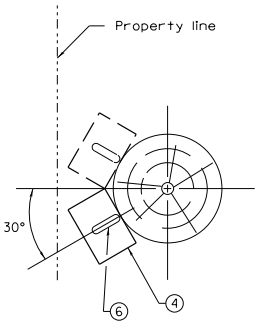


The following equipment is to be furnished and installed on the TYPE C installation.

1. Cable in conduit (electric cable, No. 6, 2/C except where otherwise specified)
2. Galvanized steel conduit 1¼ (32) with bend
3. Galvanized conduit clamps
4. Aluminum weatherproof box with gasketed cover. Weatherproof box shall be installed facing the adjacent property line. (See diagram for alternate installation.)
5. Ground stud for neutral connection
6. Service cables
7. Offset weatherproof fitting
8. Circuit breaker

TYPE C





ALTERNATE INSTALLATION
(Installation when weatherproof box cannot be installed facing the adjacent property line.)

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2009
ENGINEER OF OPERATIONS

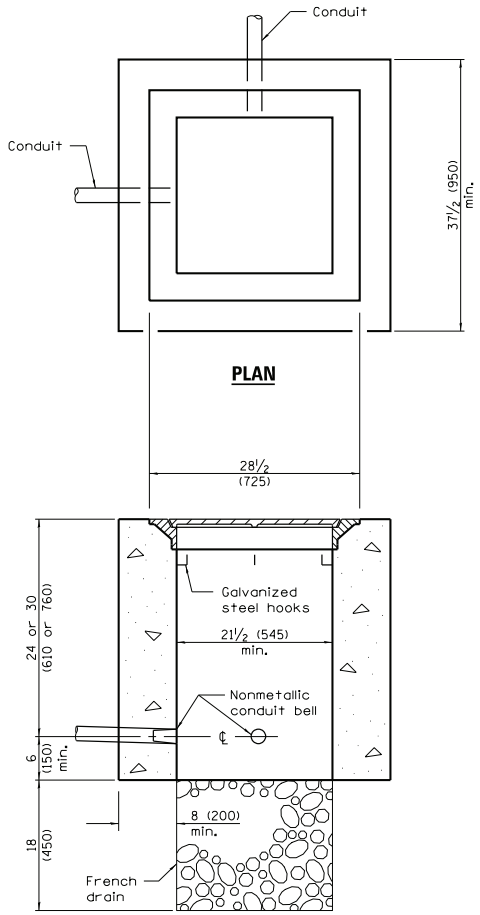
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-02

DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-02	Renum. Standard 2373-1.

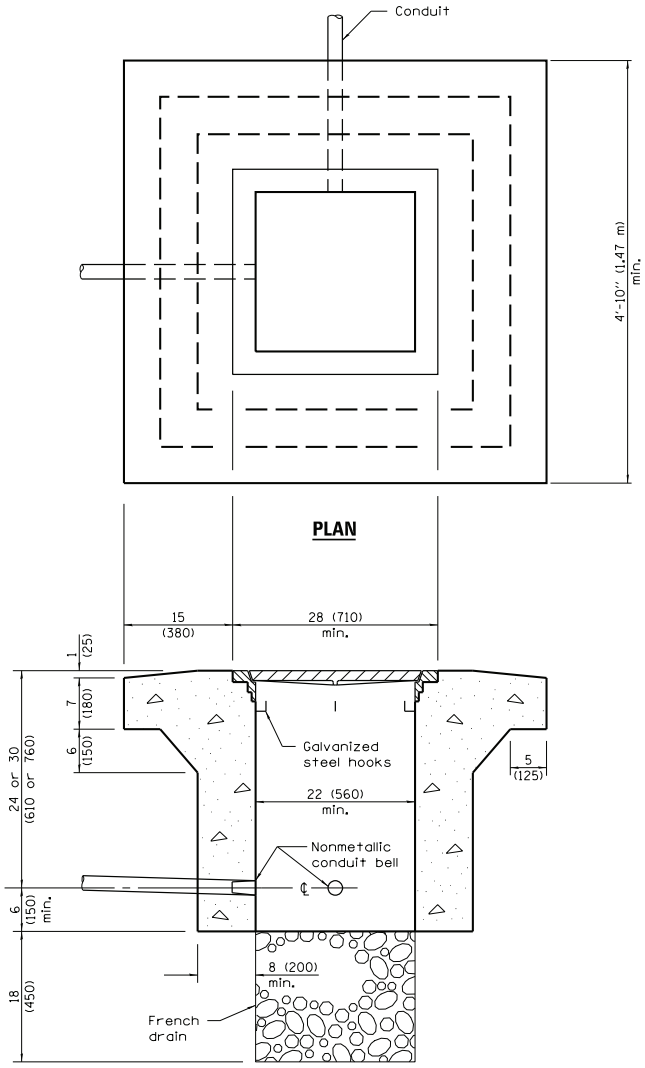
ELECTRICAL SERVICE INSTALLATION DETAILS

STANDARD 805001–01



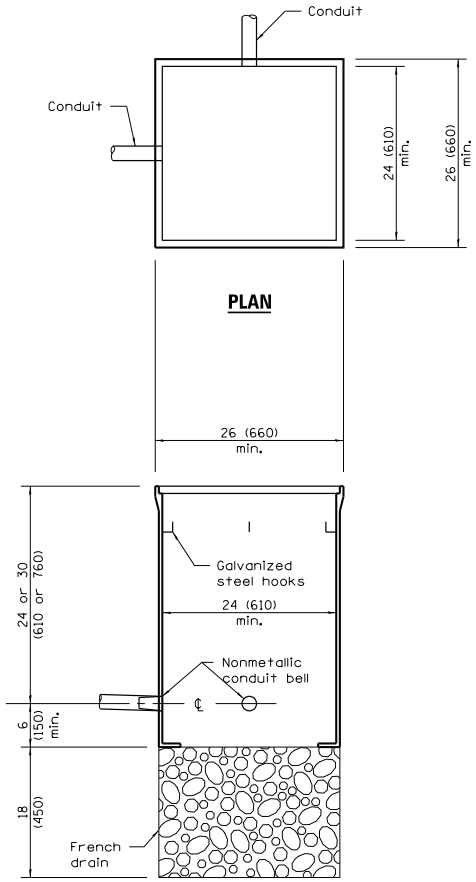
ELEVATION

PORTLAND CEMENT CONCRETE



ELEVATION

PORTLAND CEMENT CONCRETE
HEAVY DUTY



ELEVATION

COMPOSITE CONCRETE

All dimensions are in inches (millimeters) unless otherwise shown.

QUANTITIES

Depth	Concrete yd³ (m³)	
	Handhole	Heavy Duty Handhole
30 (762)	0.61 (0.47)	0.98 (0.75)
36 (914)	0.73 (0.56)	1.10 (0.84)

Illinois Department of Transportation

APPROVED January 1. 2015
ENGINEER OF OPERATIONS

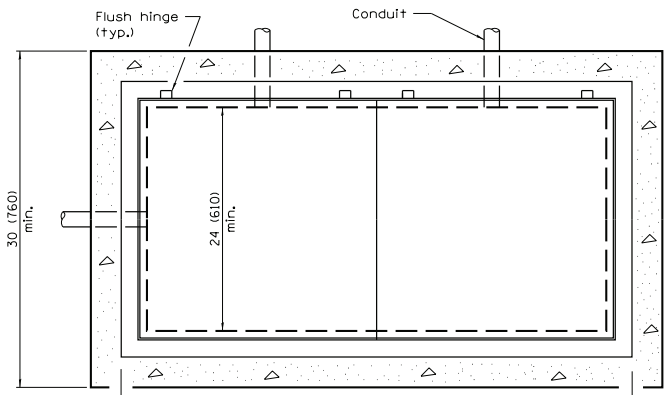
APPROVED January 1. 2015
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

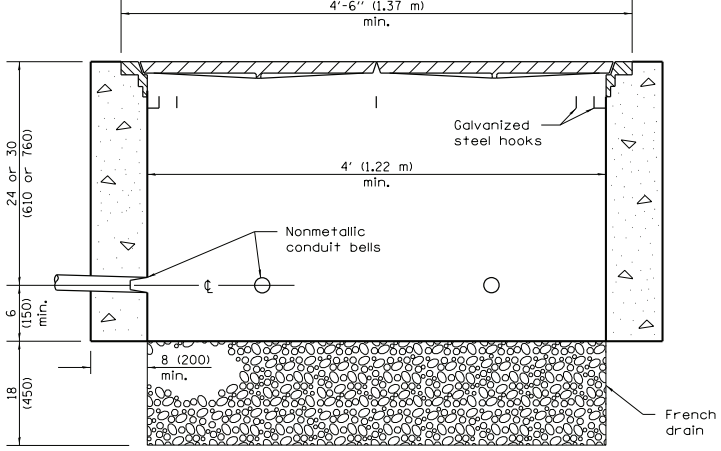
DATE	REVISIONS
1-1-15	Corrected dimension on
	heavy duty handhole. Added
	concrete quantities table.
1-1-09	Switched units to
	English (metric).

HANDHOLES

STANDARD 814001-03

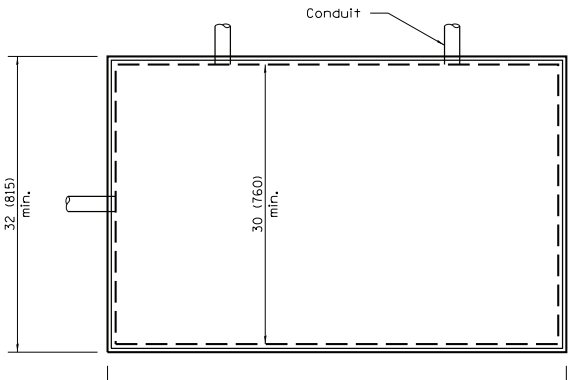


PLAN

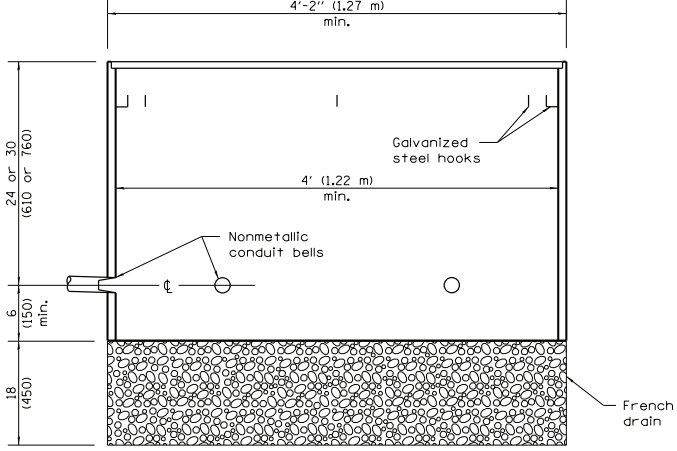


ELEVATION

PORTLAND CEMENT CONCRETE



PLAN



ELEVATION

COMPOSITE CONCRETE

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-07	Revised composite conc.
	handhole. Rem. weights
	of frames and covers.

DOUBLE HANDHOLES

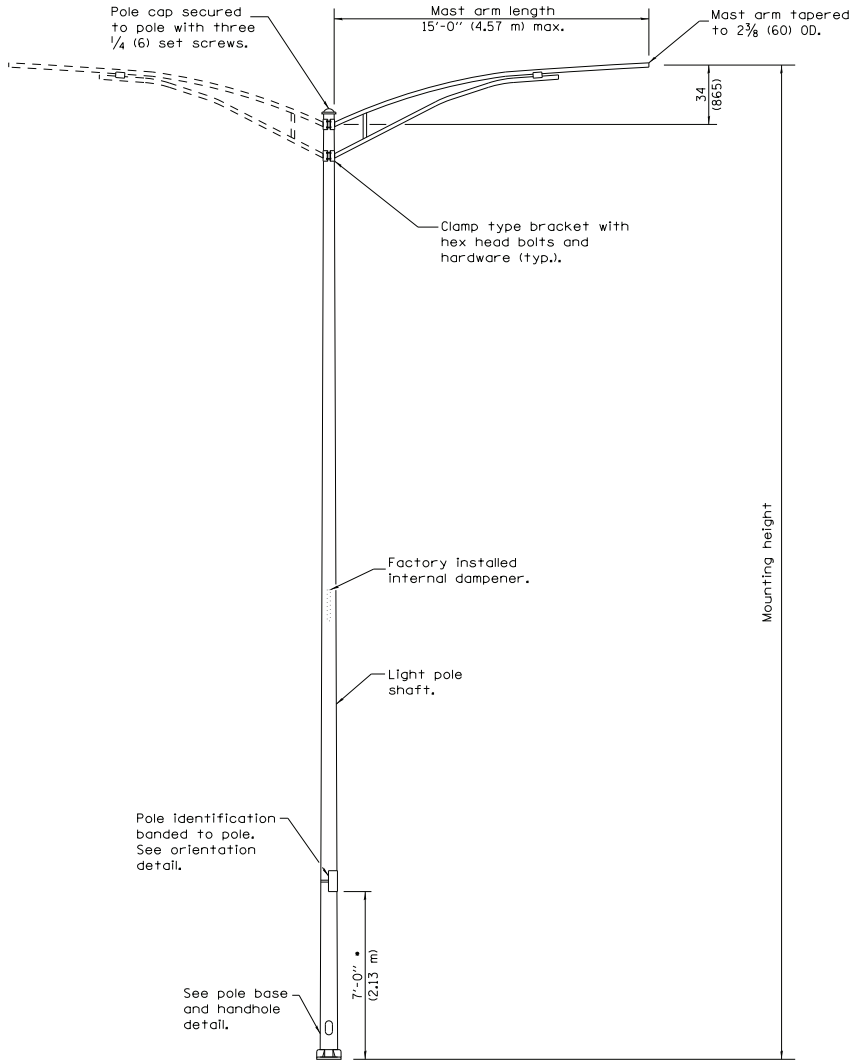
STANDARD 814006-02

Illinois Department of Transportation

APPROVED January 1, 2009
ENGINEER OF OPERATIONS

APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



MAST ARM LIGHT POLE

(Single or twin mount)

• Unless directed otherwise by the Engineer.

POLE		
MOUNTING HEIGHT	MINIMUM SHAFT DIAMETER	MINIMUM WALL THICKNESS
35' (10.7 m) or less	8 tapered to 4 1/2 (200 to 114)	0.25 (6)
Greater than 35' (10.7 m) to 45' (13.7 m)	10 tapered to 6 (250 to 150)	0.25 (6)
Greater than 45' (13.7 m) to 50' (15.2 m)	10 tapered to 6 (250 to 150)	0.312 (8)

POLE BASE	
MOUNTING HEIGHT	BOLT CIRCLE DIAMETER
35' (10.7 m) or less	11 1/2 (290)
Greater than 35' (10.7 m) to 50' (15.2 m)	15 (380)

GENERAL NOTES

See Standard 836001 for Light Pole Foundation and grounding electrode.

See Standard 720001 for pole identification banding to pole.

Voids in light pole base shall be sealed to prevent rodent entry.

Provide breakaway devices where required.

Where anchor rods on existing bridge parapets are too short to mount poles as shown, install leveling plate directly on concrete and level with stainless steel washers.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2015
ENGINEER OF PRELIMINARY ENGINEERING

APPROVED January 1, 2015
ENGINEER OF DESIGN AND ENVIRONMENT

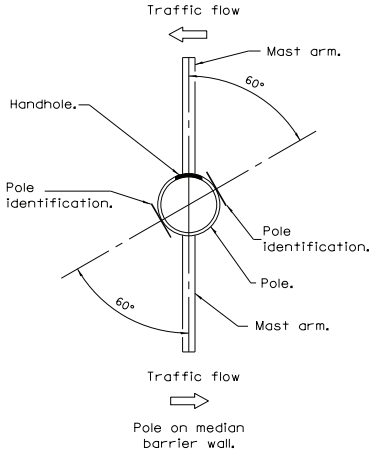
ISSUED 1-1-12

DATE	REVISIONS
1-1-15	Revised note on
	HANDHOLE DETAIL.
1-1-14	Added pole mounted on
	bridge parapet. Modified
	attachment of screen.

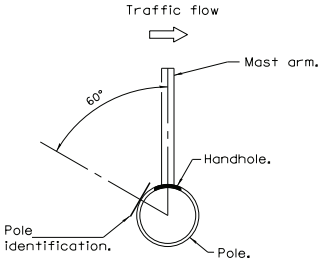
LIGHT POLE ALUMINUM MAST ARM

(Sheet 1 of 2)

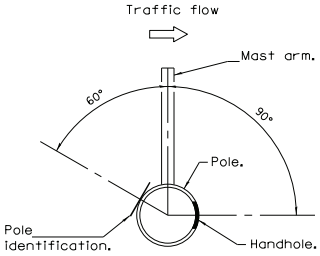
STANDARD 830001-03



Pole on median barrier wall.

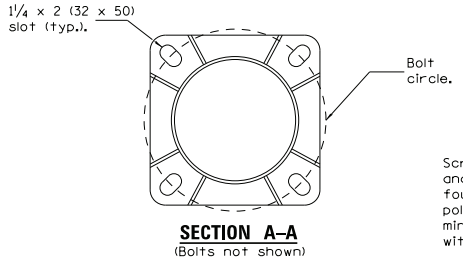


Pole on barrier wall, retaining wall or parapet.

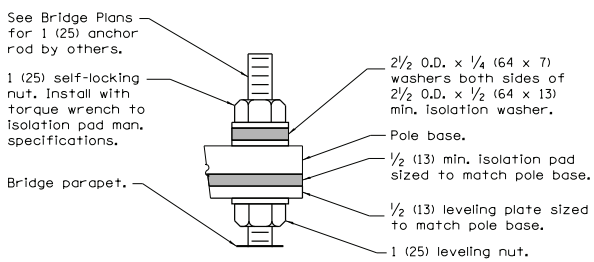


Pole on ground mounted foundation.

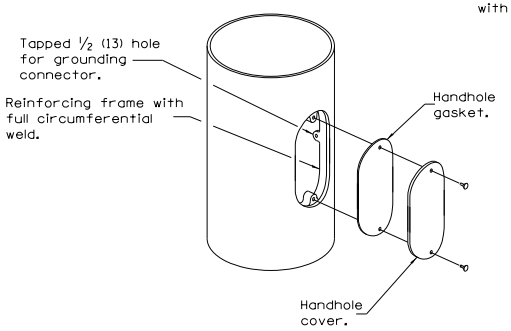
HANDHOLE /IDENTIFICATION ORIENTATION DETAIL



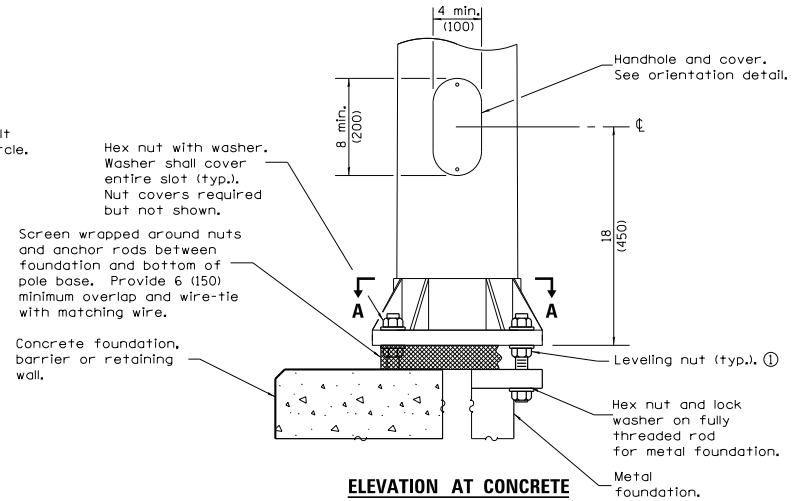
SECTION A–A
(Bolts not shown)



DETAIL A

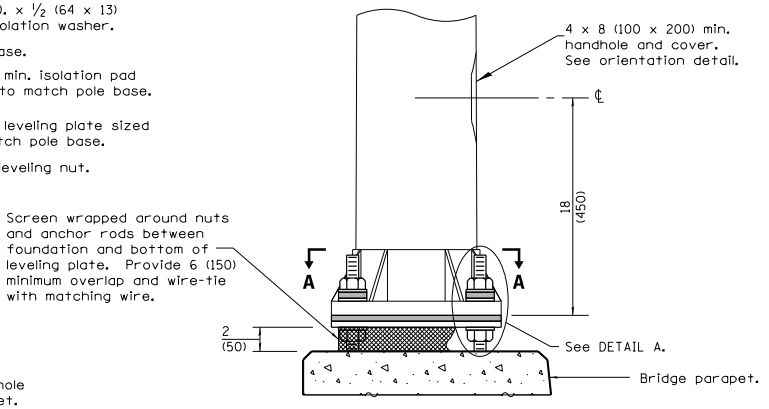


HANDHOLE DETAIL



ELEVATION AT CONCRETE FOUNDATION, METAL FOUNDATION OR RETAINING WALL

① Omit leveling nuts when breakaway devices are required.



ELEVATION AT BRIDGE PARAPET

POLE BASE DETAILS

Illinois Department of Transportation

PASSED January 1, 2015
ENGINEER OF PREILIMINARY ENGINEERING

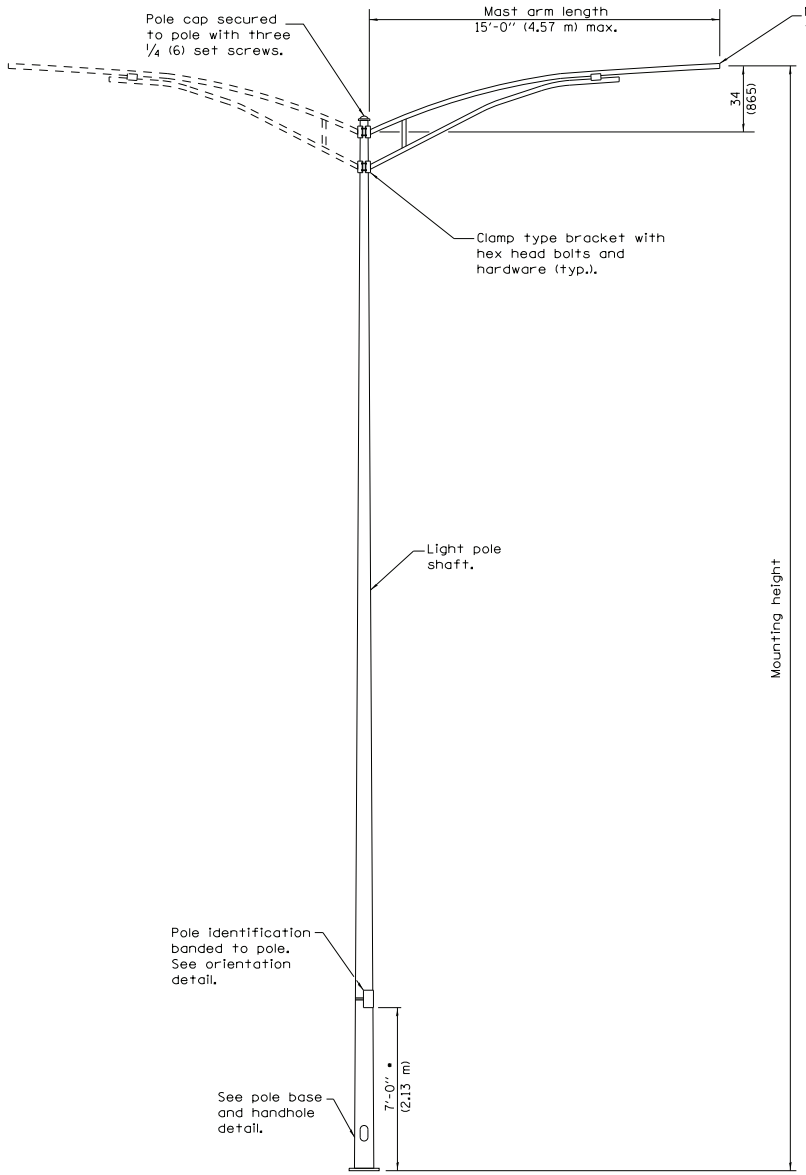
APPROVED January 1, 2015
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-12

LIGHT POLE ALUMINUM MAST ARM

(Sheet 2 of 2)

STANDARD 830001–03



MAST ARM
LIGHT POLE

(Single or twin mount)

• Unless directed otherwise by the Engineer.

POLE		
MOUNTING HEIGHT	MINIMUM SHAFT DIAMETER	MINIMUM WALL THICKNESS
35' (10.7 m) or less	8 tapered to 4 (200 to 100)	10 guage
Greater than 35' (10.7 m) to 50' (15.2 m)	10 tapered to 4 (250 to 100)	7 guage
Greater than 50' (15.2 m) to 60' (18.3 m)	10 tapered to 4 (250 to 100)	5 guage

BASE PLATE		
MOUNTING HEIGHT	BOLT CIRCLE DIAMETER	BASE PLATE THICKNESS
35' (10.7 m) or less	11 1/2 (290)	1 (25)
Greater than 35' (10.7 m) to 50' (15.2 m)	15 (380)	1 1/4 (32)
Greater than 50' (15.1 m) to 60' (18.3 m)	15 (380)	1 1/2 (40)

GENERAL NOTES

See Standard 836001 for Light Pole Foundation and grounding electrode.

See Standard 720001 for pole identification banding to pole.

Provide breakaway devices where required.

Where anchor rods on existing bridge parapets are too short to mount poles as shown, install leveling plate directly on concrete and level with stainless steel washers.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2014
ENGINEER OF PRELIMINARY ENGINEERING

APPROVED January 1, 2014
ENGINEER OF DESIGN AND ENVIRONMENT

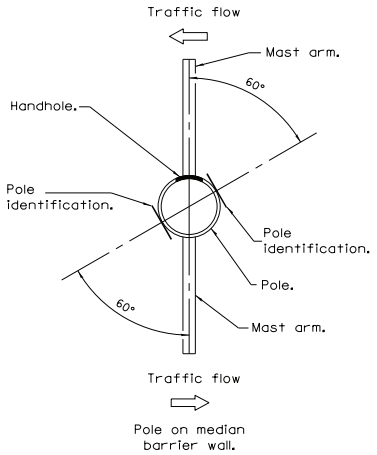
ISSUED 1-1-12

DATE	REVISIONS
1-1-14	Added pole mounted on
	bridge parapet. Modified
	attachment of screen.
1-1-13	Added 'barrier or retaining
	wall' to POLE BASE DETAIL.

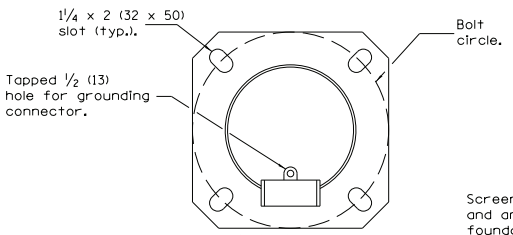
LIGHT POLE
STEEL MAST ARM

(Sheet 1 of 2)

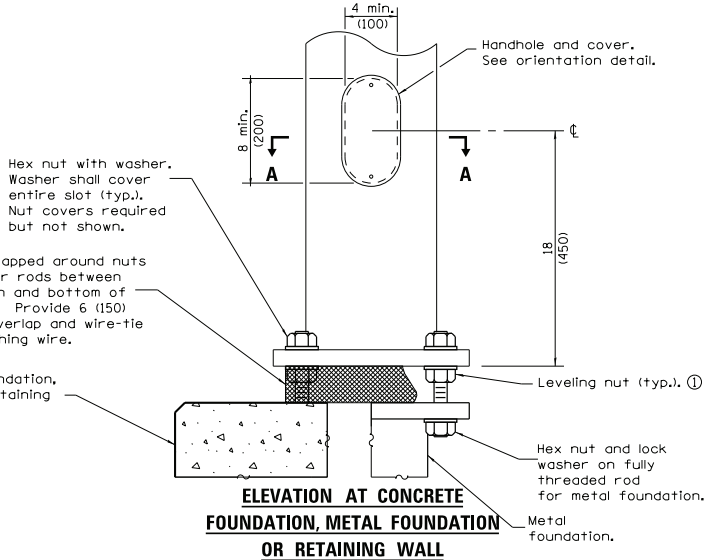
STANDARD 830011-02



Pole on median barrier wall.

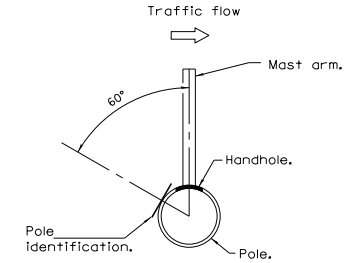


SECTION A–A
(Bolts not shown)

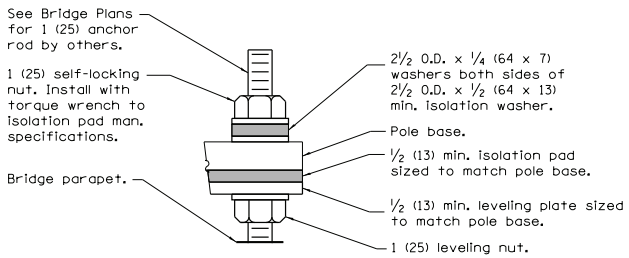


ELEVATION AT CONCRETE FOUNDATION, METAL FOUNDATION OR RETAINING WALL

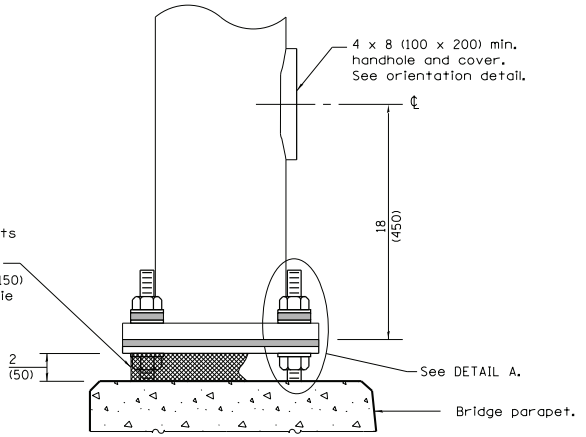
① Omit leveling nuts when breakaway devices are required.



Pole on barrier wall, retaining wall or parapet.

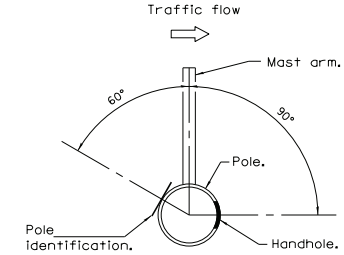


DETAIL A



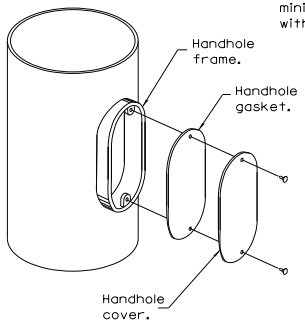
ELEVATION AT BRIDGE PARAPET

POLE BASE DETAILS



Pole on ground mounted foundation.

HANDHOLE /IDENTIFICATION ORIENTATION DETAIL



HANDHOLE DETAIL

Illinois Department of Transportation

PASSED January 1, 2014
ENGINEER OF PRELIMINARY ENGINEERING

APPROVED January 1, 2014
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-12

LIGHT POLE STEEL MAST ARM

(Sheet 2 of 2)

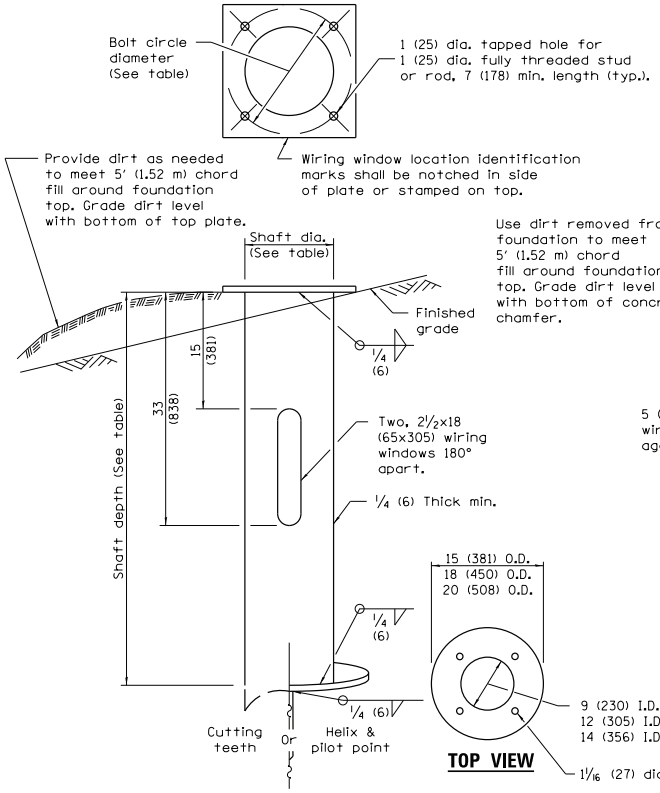
STANDARD 830011–02

LIGHT POLE MOUNTING HEIGHT	BOLT CIRCLE DIAMETER	METAL FOUNDATION SHAFT DIAMETER	METAL FOUNDATION SHAFT DEPTH	METAL FOUNDATION TOP PLATE (min)	CONCRETE FOUNDATION SHAFT DIAMETER	CONCRETE FOUNDATION SHAFT DEPTH	CONCRETE FOUNDATION ANCHOR ROD LENGTH (1)
≤30′ (9.1 m)	11½ (292)	8⅝ (220)	6′ (1.83 m)	12 x 12 x 1 (300 x 300 x 25)	24 (610)	5′-0″ (1.52 m)	4′-9″ (1.45 m)
31′-35′ (9.4 m - 10.7 m)	11½ (292)	8⅝ (220)	6′ (1.83 m)	12 x 12 x 1 (300 x 300 x 25)	24 (610)	5′-6″ (1.67 m)	5′-3″ (1.60 m)
36′-40′ (10.9 m - 12.2 m)	15 (381) (3)	8⅝ (220)	6′ (1.83 m) (2)	15 x 15 x 1¼ (375 x 375 x 31)	30 (762)	6′-0″ (1.83 m)	5′-9″ (1.75 m)
41′-45′ (12.5 m - 13.7 m)	15 (381) (3)	8⅝ (220)	6′ (1.83 m) (2)	15 x 15 x 1¼ (375 x 375 x 31)	30 (762)	6′-6″ (1.98 m)	6′-3″ (1.90 m)
46′-50′ (14.0 m - 15.2 m)	15 (381) (3)	8⅝ (220)	8′ (2.44 m)	15 x 15 x 1¼ (375 x 375 x 31)	30 (762)	7′-0″ (2.13 m)	6′-9″ (2.00 m)

(1) Length does not include 4 (100) hook.

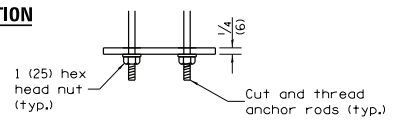
(2) 8⅝ x 8′-0″ (220 x 2.44 m) for twin luminaires.

(3) Bolt circle diam. shall be 17 (430) when a transformer base is used.

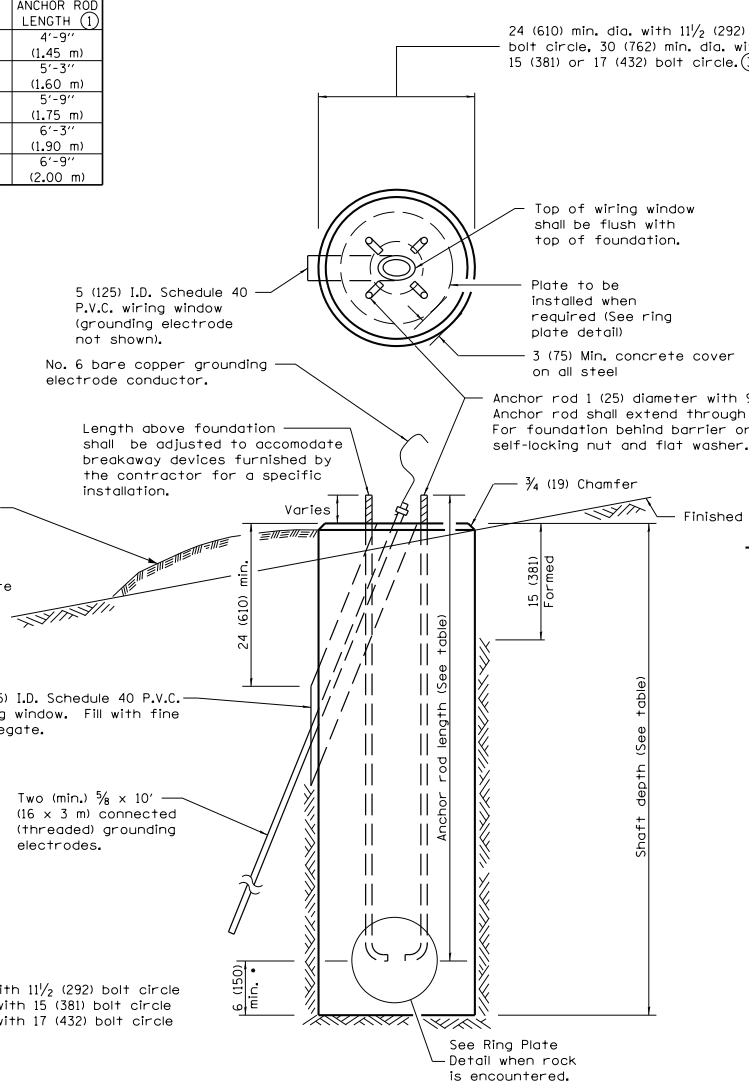


METAL FOUNDATION

TOP VIEW

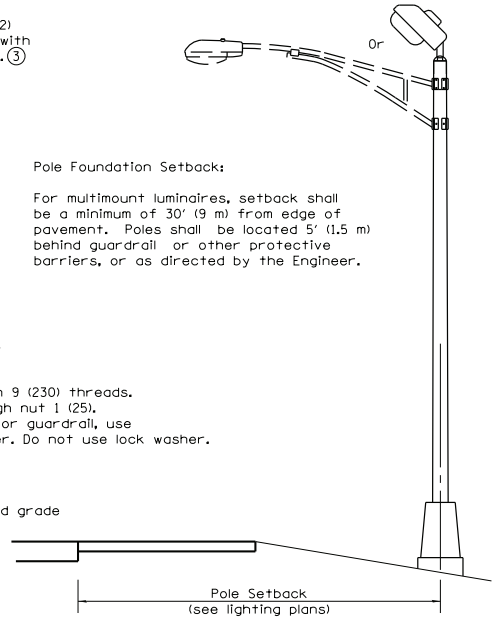


RING PLATE DETAIL



CONCRETE FOUNDATION

• If the required anchor rod length above top of foundation is less than 3 (75), anchor rods may be lowered below 6 (150).



Pole Foundation Setback:

For multimount luminaires, setback shall be a minimum of 30′ (9 m) from edge of pavement. Poles shall be located 5′ (1.5 m) behind guardrail or other protective barriers, or as directed by the Engineer.

GENERAL NOTES

All foundations are designed to be located on slopes not exceeding 2:1 where soils have an unconfined compressive strength of at least 1.0 TSF. The Contractor shall verify the soil strength during drilling for concrete foundations or by monitoring installation resistance of metal foundations and notify the Engineer if other conditions are encountered.

When rock is encountered the foundation depth may be reduced 6 (150) for every 12 (300) of embedment in rock. The minimum foundation depth shall be 4′-6″ (1.37 m) with cut anchor rods 6 (150) above bottom of excavated hole. See ring plate detail.

Anchor rods shall be increased in diameter as needed for 50′ (15.2 m) mounting height or above. The Contractor shall match the breakaway device size or slotted hole size in the pole base plate to accomodate larger rod sizes.

Transformer bases shall not be used on metal foundations.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2013 (Acting)
ENGINEER OF PRELIMINARY ENGINEERING

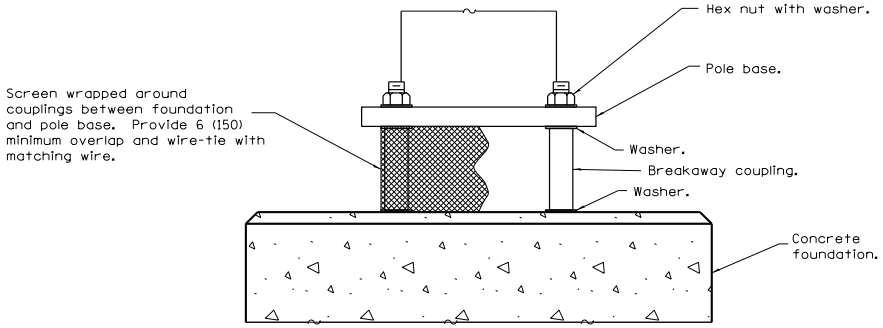
APPROVED January 1, 2013
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-10

DATE	REVISIONS
1-1-13	Revised concrete foundation notes, pole foundation set-back notes, ring plate det.
1-1-12	Revised metal foundation wiring window dimensions.

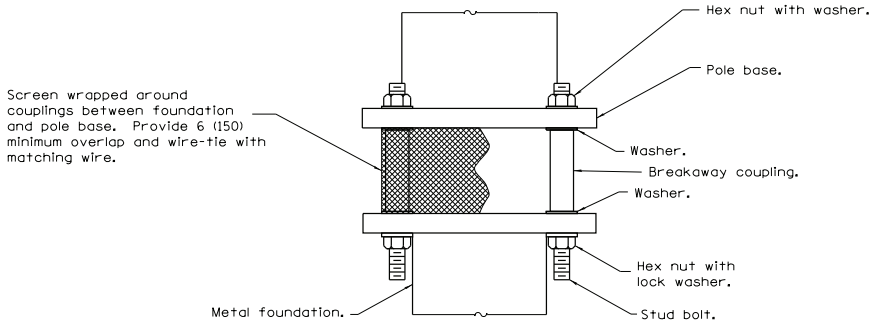
LIGHT POLE FOUNDATION

STANDARD 836001-02



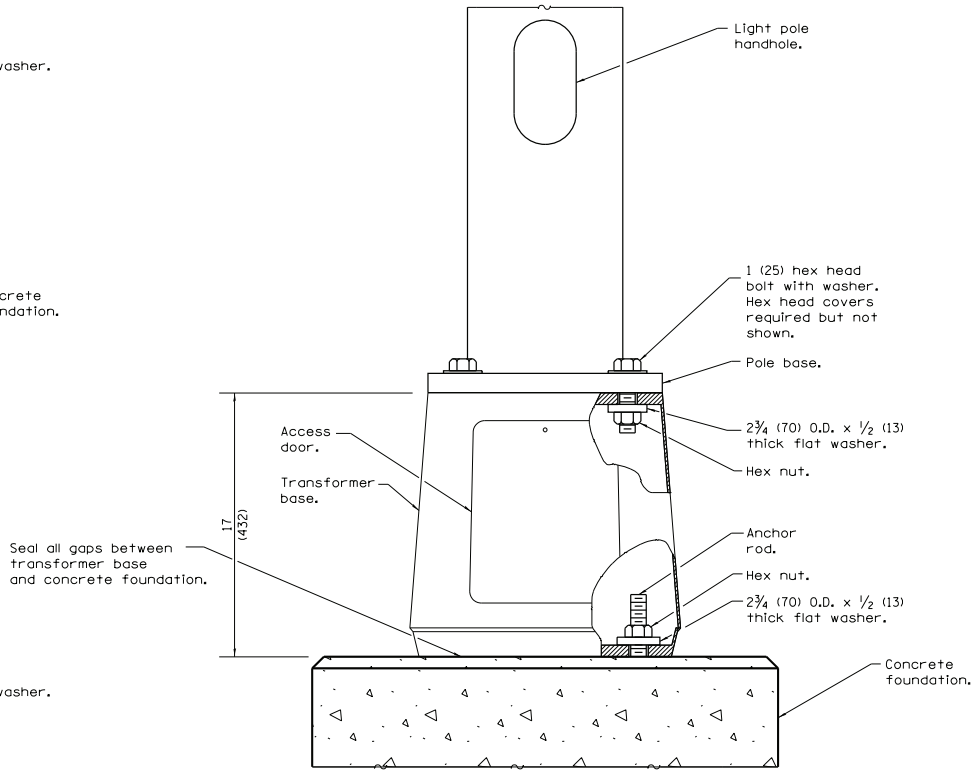
BREAKAWAY COUPLINGS ON CONCRETE FOUNDATION

(Provide pole base skirt around screen when required.)



BREAKAWAY COUPLINGS ON METAL FOUNDATION

(Provide pole base skirt around screen when required.)



BREAKAWAY TRANSFORMER BASE

GENERAL NOTES

See light pole standard for details not shown.

Use largest transformer base bolt circle possible.

Transformer bases shall not be installed on metal foundations.

Washers on top of pole base shall cover the entire bolt slot.

See Standard 836001 for Light Pole Foundation.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2014
ENGINEER OF PRELIMINARY ENGINEERING

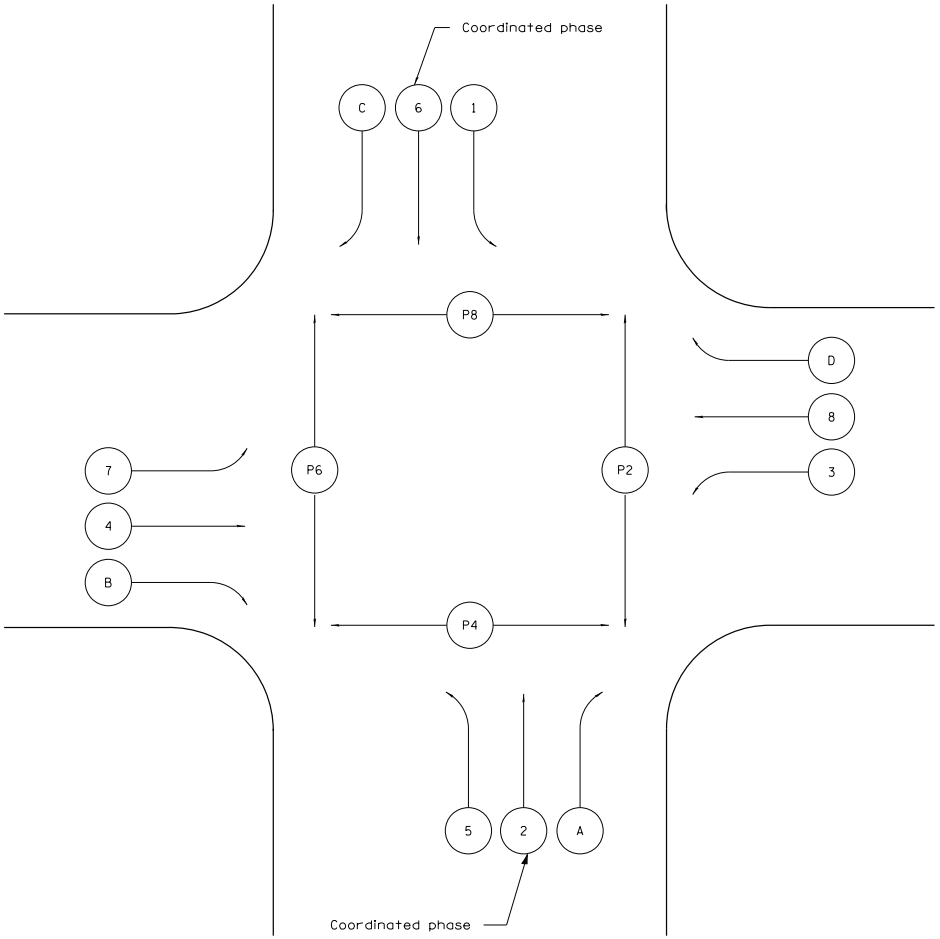
APPROVED January 1, 2014
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-12

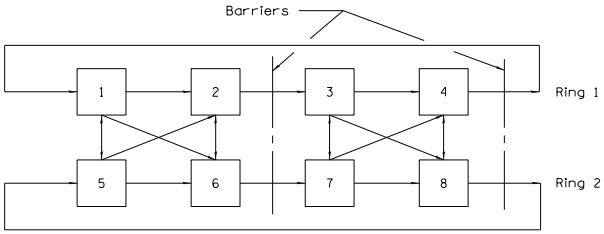
DATE	REVISIONS
1-1-14	New Standard.

BREAKAWAY DEVICES

STANDARD 838001



STANDARD PHASE DESIGNATION DIAGRAM (NEMA)



NEMA EIGHT PHASE DUAL RING ACTUATED CONFIGURATION

LEGEND

(X), [X]	Vehicular phase no. x
(PX)	Pedestrian phase no. x
(A), (B), (C), (D)	Right turn overlaps where:
(A) = (2) + (3)	
(B) = (4) + (5)	
(C) = (6) + (7)	
(D) = (8) + (1)	
NEMA	National Electrical Manufacturers Association

Illinois Department of Transportation

APPROVED January 1, 2009
ENGINEER OF OPERATIONS

APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

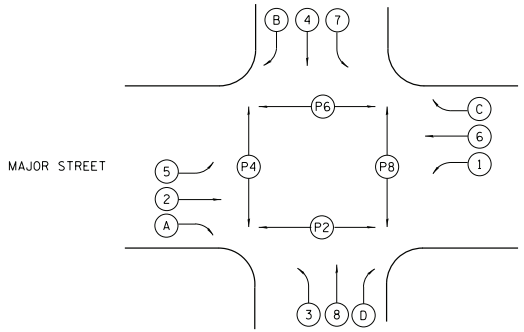
ISSUED 1-1-97

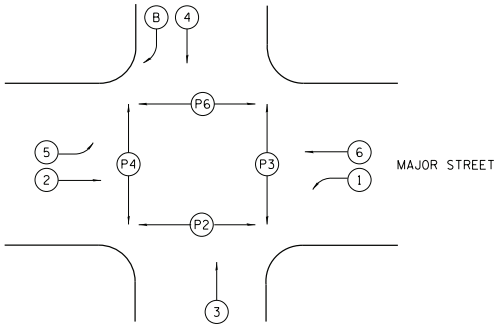
DATE	REVISIONS
1-1-09	Omitted note regarding
	units of length.
1-1-97	Renum. Standard 2393-2.

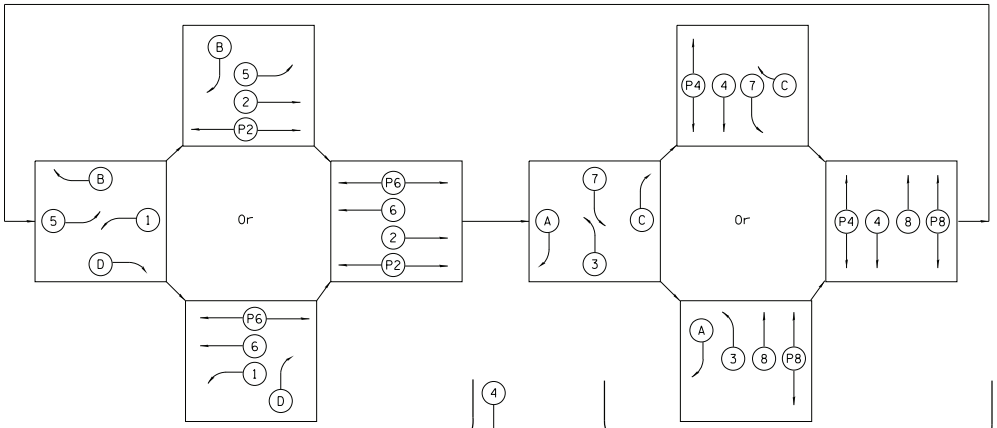
STANDARD PHASE DESIGNATION DIAGRAMS AND PHASE SEQUENCES

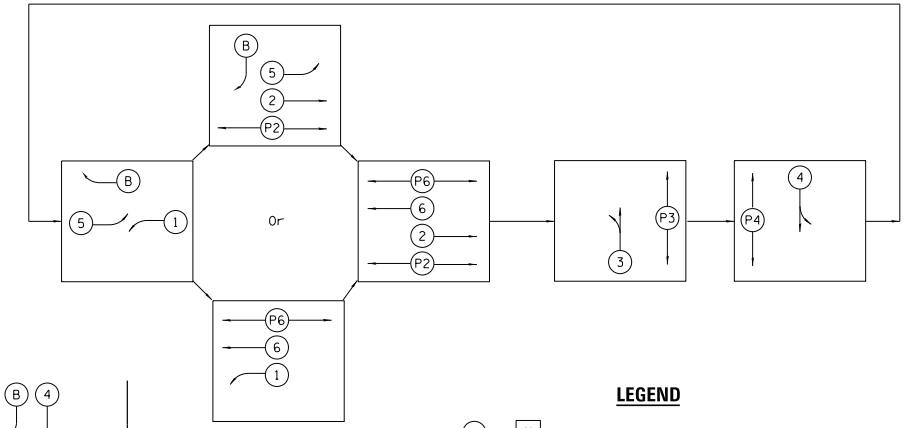
(Sheet 1 of 2)

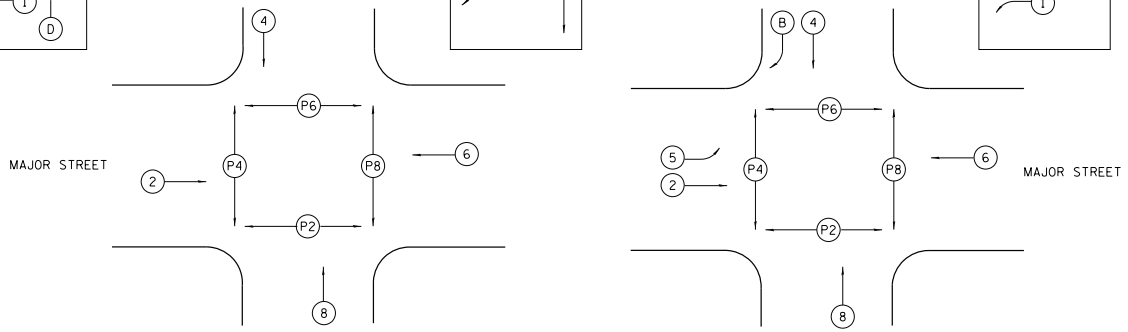
STANDARD 857001-01

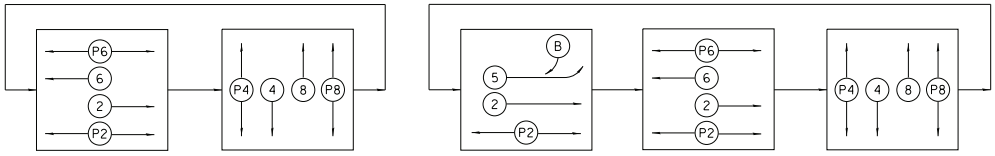












LEGEND

(X), [X]	Vehicular phase no. x
PX	Pedestrian phase no. x
(A), (B), (C), (D)	Right turn overlaps where:
(A) = (2) + (3)	
(B) = (4) + (5)	
(C) = (6) + (7)	
(D) = (8) + (1)	
NEMA	National Electrical Manufacturers Association

PHASE DESIGNATION DIAGRAMS AND CORRESPONDING PHASE SEQUENCES

Illinois Department of Transportation

APPROVED January 1, 2009
ENGINEER OF OPERATIONS

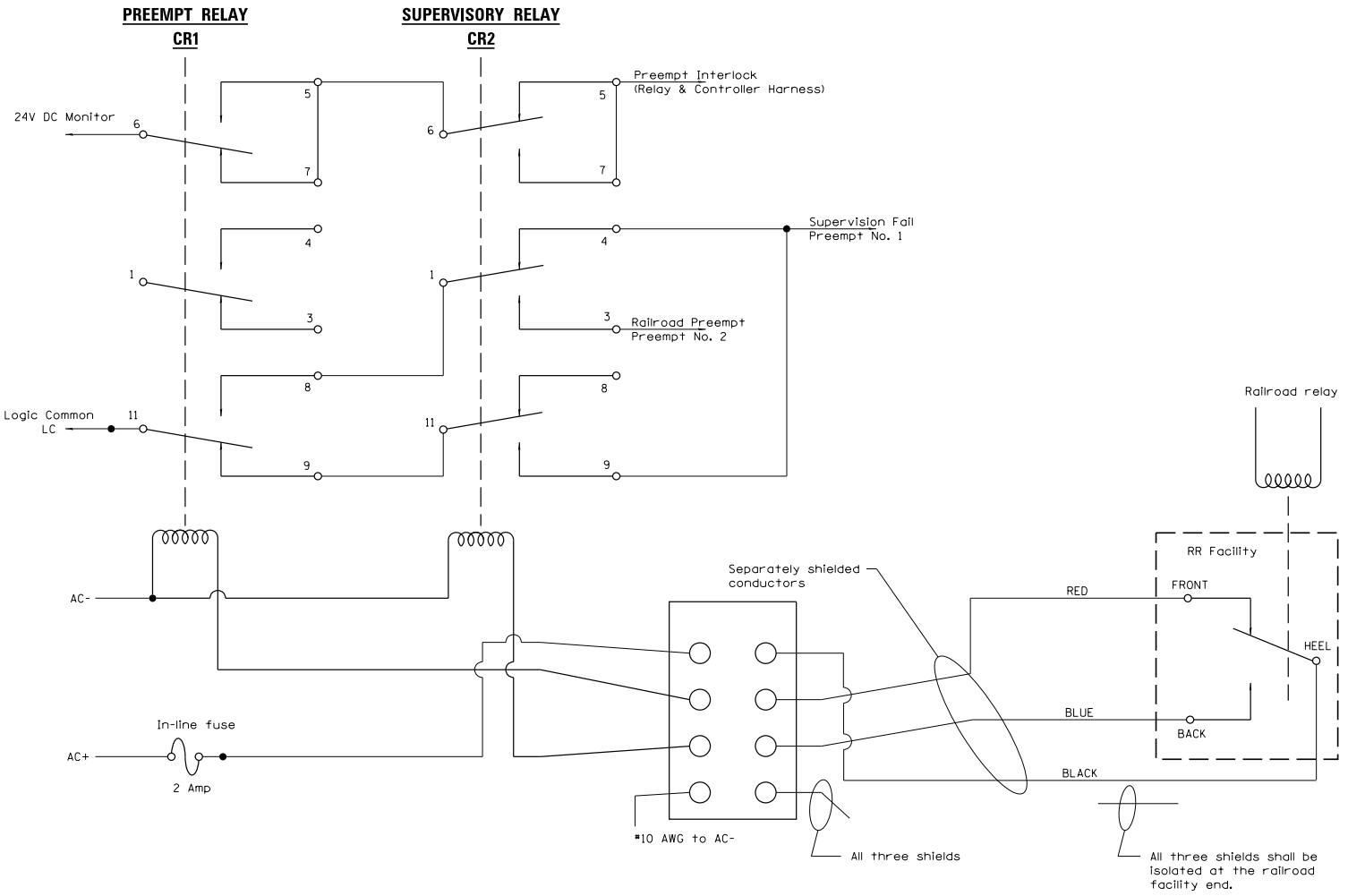
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

STANDARD PHASE DESIGNATION DIAGRAMS AND PHASE SEQUENCES

(Sheet 2 of 2)

STANDARD 857001-01



RELAYS IN NON–PREEMPT STATE – RAILROAD AND PREEMPT RELAYS ENERGIZED

GENERAL NOTES

CR1 and CR2 are 120VAC 3PDT Relays.

Supervision Fail is Preempt No. 1, causing traffic signal controller to implement all-red flash following track clearance phase.

Railroad Preempt is Preempt No. 2, causing traffic signal controller to implement railroad preemption routine following 1 second delay.

Preempt No. 1 and Preempt No. 2 shall have priority over all other preempts. The railroad preemption routine shall abbreviate each and all active pedestrian phases by immediately entering into flashing DON'T WALK and timing concurrently with the associated vehicle yellow change interval.

Illinois Department of Transportation

APPROVED January 1, 2009
ENGINEER OF OPERATIONS

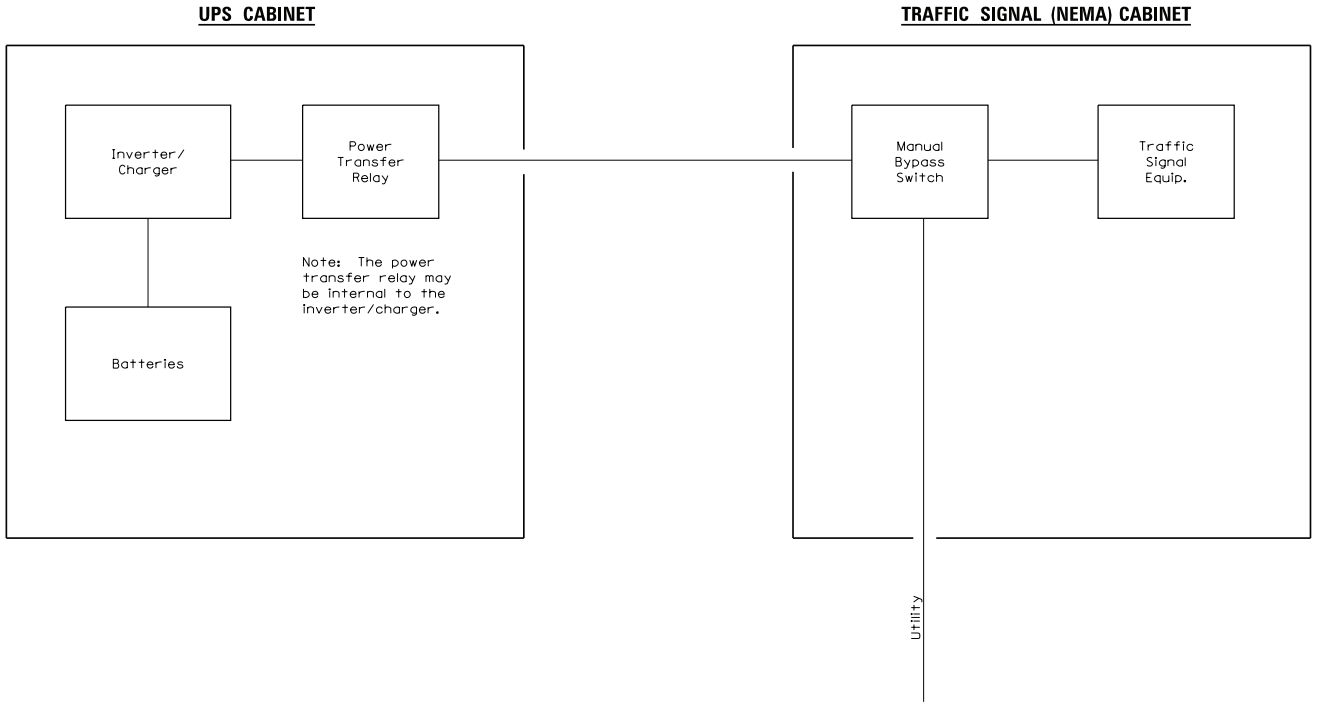
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-04

DATE	REVISIONS
1-1-09	Omitted note regarding
	units of length.
1-1-04	New Standard.

SUPERVISED RAILROAD INTERCONNECT CIRCUIT

STANDARD 857006–01



SINGLE LINE BLOCK DIAGRAM

Illinois Department of Transportation

APPROVED January 1, 2009
ENGINEER OF OPERATIONS

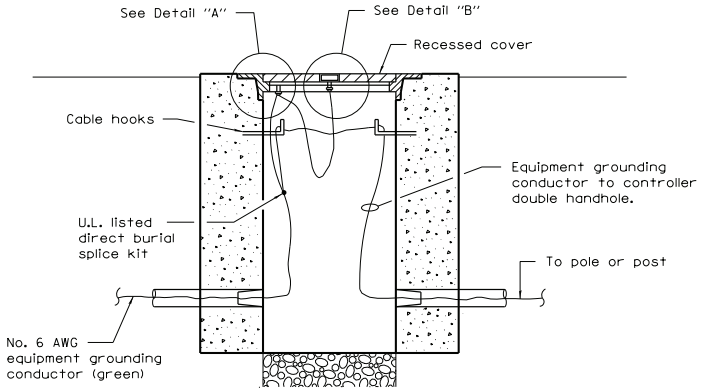
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 4-1-06

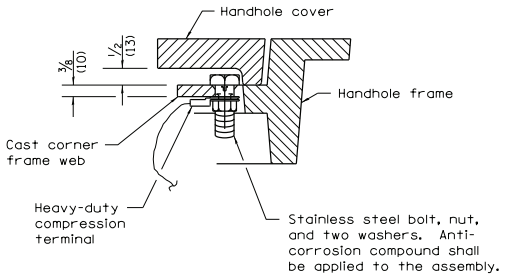
DATE	REVISIONS
1-1-09	Omitted note regarding
	units of length.
4-1-06	New Standard

UNINTERRUPTABLE POWER SUPPLY (UPS)

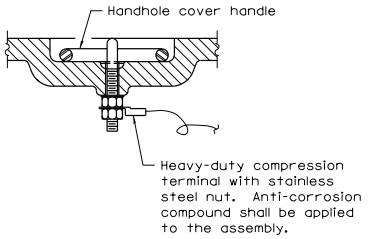
STANDARD 862001–01



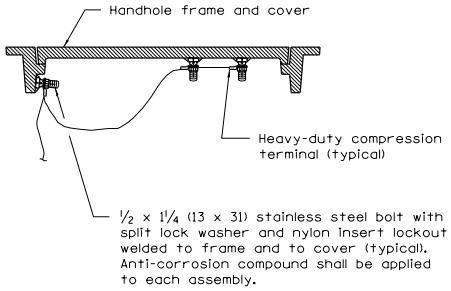
BONDING A HANDHOLE COVER & FRAME



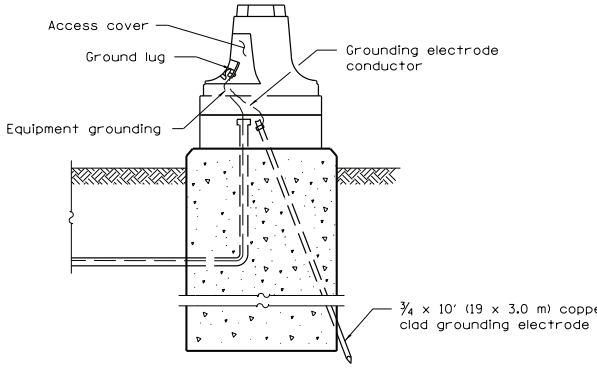
DETAIL "A"



DETAIL "B"

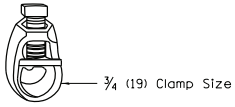


BONDING AN EXISTING HANDHOLE COVER & FRAME



GROUNDING A MAST ARM POLE/POST

HEAVY-DUTY COMPRESSION TERMINAL



HEAVY-DUTY GROUND ROD CLAMP

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2009
ENGINEER OF OPERATIONS

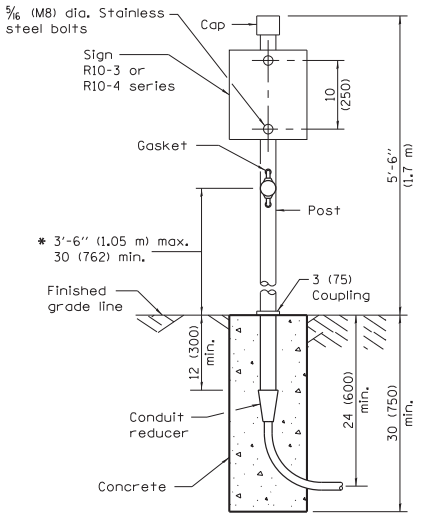
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 4-1-06

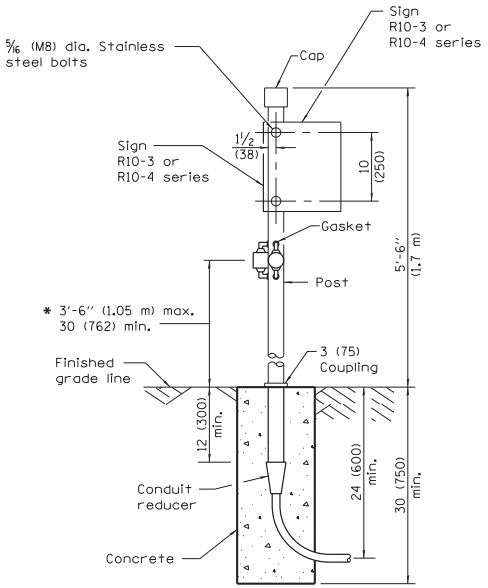
DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-07	Revised terminology.

TRAFFIC SIGNAL GROUNDING & BONDING

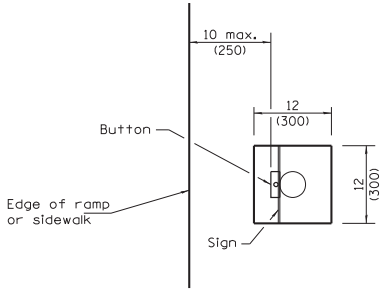
STANDARD 873001-02



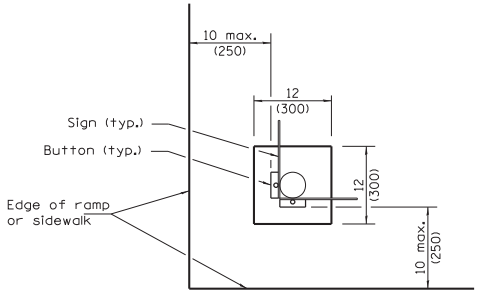
PEDESTRIAN ONE PUSH BUTTON POST



PEDESTRIAN TWO PUSH BUTTON POST



TOP VIEW
TYPICAL ONE BUTTON



TOP VIEW
TYPICAL TWO BUTTONS

* 36 (914) prefered

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
4-1-16	Revised sign numbers
	for concistency with
	current MUTCD.
1-1-14	Revised and added
	dimensions for PROWAG
	reach range requirements.

PEDESTRIAN PUSH BUTTON POST

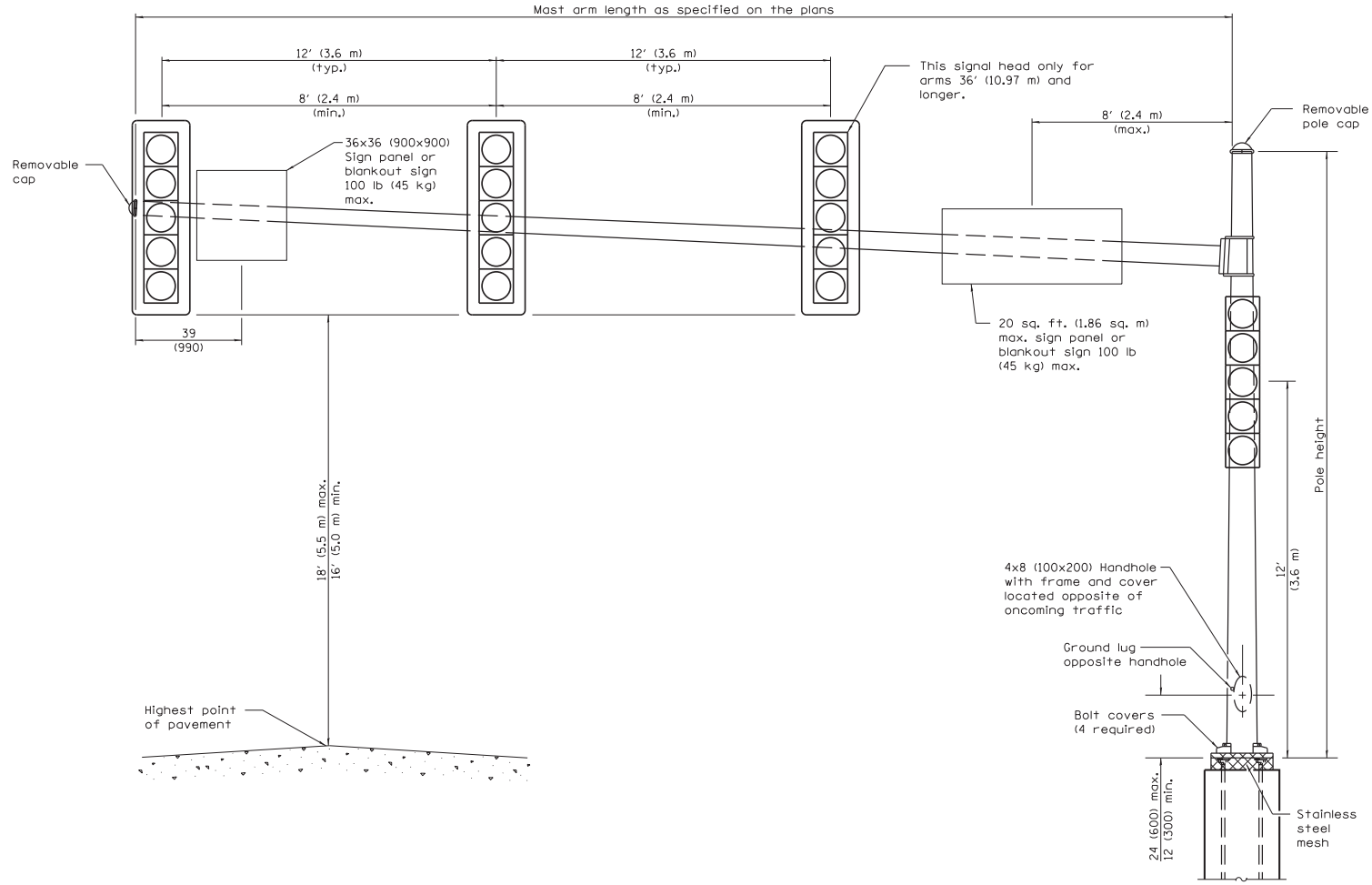
STANDARD 876001-04

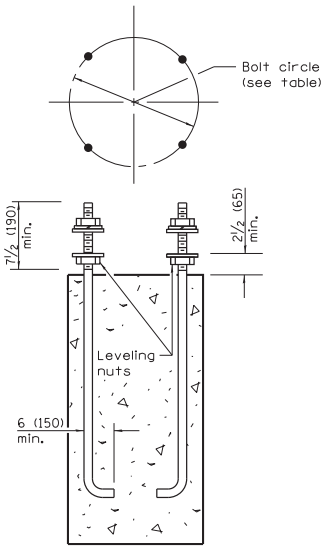
Illinois Department of Transportation

APPROVED April 1, 2016
ENGINEER OF OPERATIONS

APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-07





ANCHOR ROD DETAIL

MAST ARM LENGTH	BOLT CIRCLE	ANCHOR ROD SIZE
16′ thru 20′ (4.87 m thru 6.10 m)	15 (380)	1½ x 5′ (38 x 1.5 m)
22′ thru 30′ (6.71 m thru 9.14 m)	18 (450)	1½ x 5′ (38 x 1.5 m)
32′ thru 40′ (9.75 m thru 12.20 m)	18 (450)	1¾ x 7′ (44 x 2.10 m)
42′ thru 55′ (12.80 m thru 16.80 m)	21 (535)	1¾ x 7′ (44 x 2.10 m)

GENERAL NOTES

Signal heads, sign panels, and other attachments are shown for minimum design loading purposes only. Each signal head shall weigh 80 lb (36 kg) and have a projected area of 14.7 sq. ft. (1.37 sq. m).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED April 1, 2016
ENGINEER OF OPERATIONS

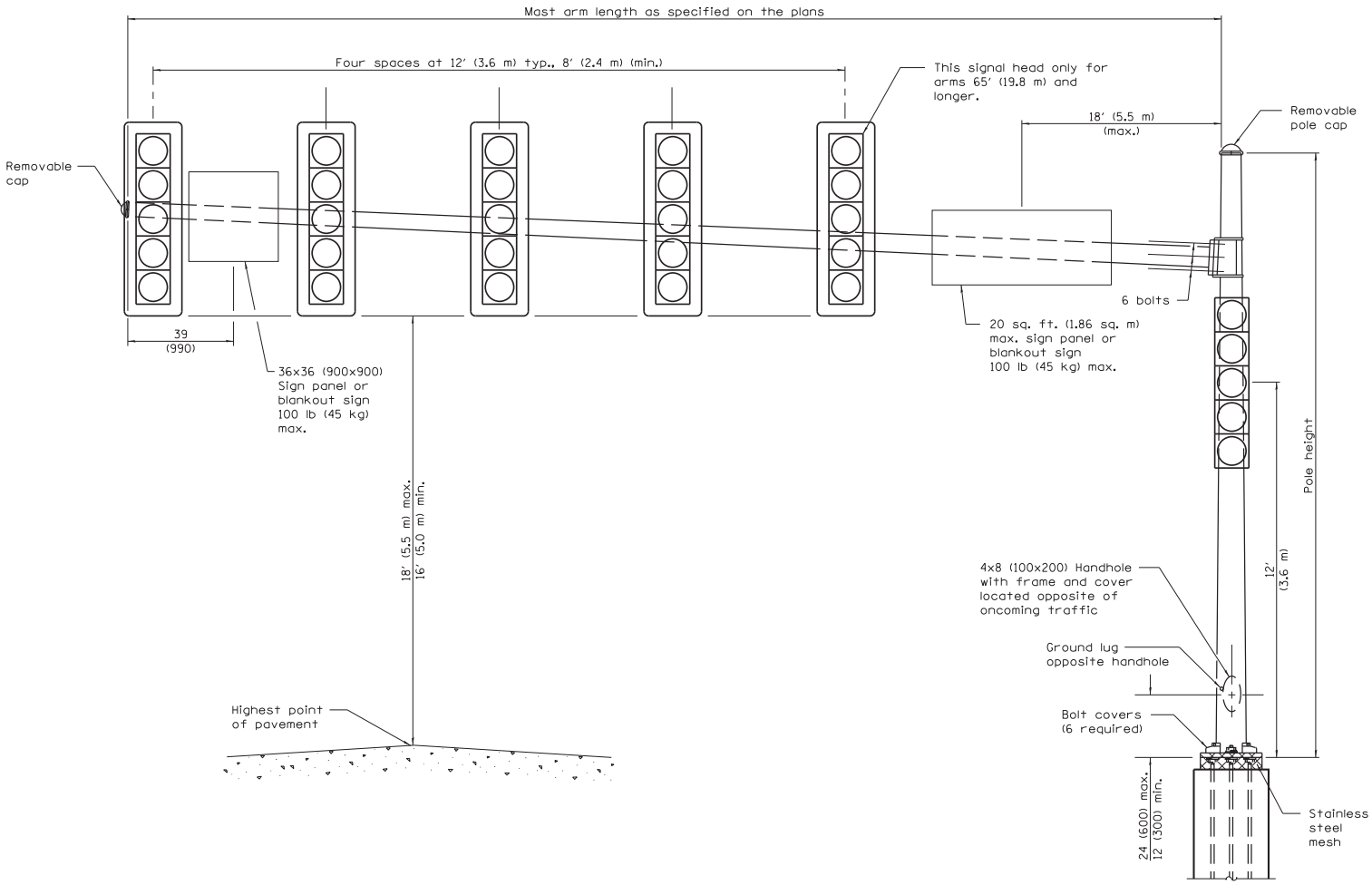
APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

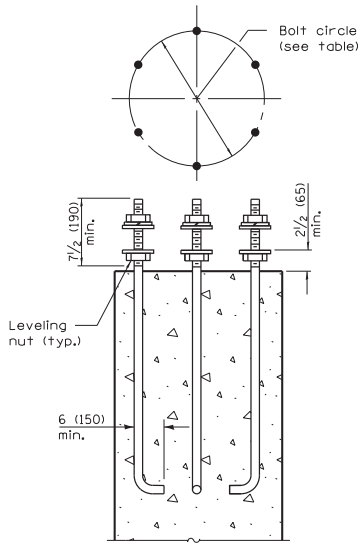
ISSUED 1-1-12

DATE	REVISIONS
4-1-16	Changed sign panel to 36x36.
	Added max. weight of 100 lb.
	Modified dim. to outer signal.
1-1-12	Changed 2.5′x8′ sign panel
	to 20 sq. ft. (1.86 sq. m)
	max.

STEEL MAST ARM ASSEMBLY AND POLE 16′ THROUGH 55′

STANDARD 877001–06





ANCHOR ROD DETAIL

MAST ARM LENGTH	BOLT CIRCLE	ANCHOR ROD SIZE
56' thru 64' (17.1 m thru 19.8 m)	24 (610)	1¾ x 7' (44 x 2.10 m)
65' thru 75' (20.1 m thru 22.9 m)	27 (686)	2 x 7'-6" (51 x 2.30 m)

GENERAL NOTES

Signal heads, sign panels, and other attachments are shown for minimum design loading purposes only. Each signal head shall weigh 80 lbs. (36 kg) and have a projected area of 14.7 sq. ft. (1.37 sq. m).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED April 1, 2016
ENGINEER OF OPERATIONS

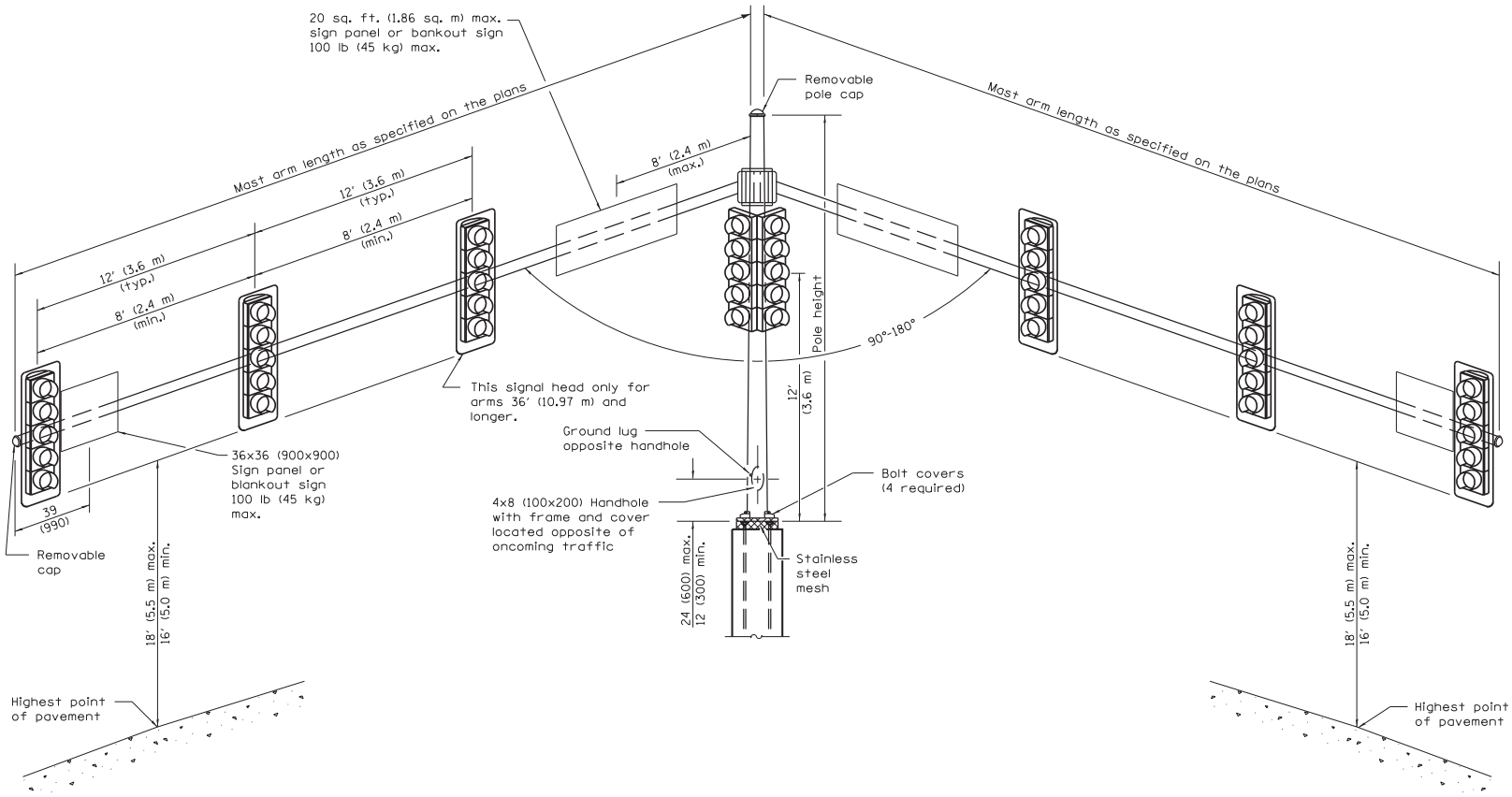
APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

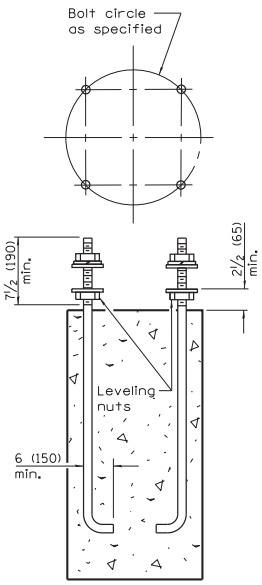
ISSUED 1-1-08

DATE	REVISIONS
4-1-16	Changed sign panel to
	36x36 and 100 lb max.
1-1-12	Changed 2.5'x8' sign panel
	to 20 sq. ft. (1.86 sq. m)
	max.

STEEL MAST ARM ASSEMBLY AND POLE 56' THROUGH 75'

STANDARD 877002–03





ANCHOR ROD DETAIL

MAST ARM LENGTH	BOLT CIRCLE	ANCHOR ROD SIZE
16' thru 20' (4.87 m thru 6.10 m)	18 (450)	1½ x 5' (38 x 1.5 m)
22' thru 30' (6.71 m thru 9.14 m)	18 (450)	1¾ x 7' (44 x 2.10 m)
32' thru 38' (9.75 m thru 11.60 m)	18 (450)	2 x 7'-6" (51 x 2.30 m)
40' thru 55' (12.20 m thru 16.80 m)	21 (535)	2 x 7'-6" (51 x 2.30 m)

GENERAL NOTES

Signal heads, sign panels, and other attachments are shown for minimum design loading purposes only. Each signal head shall weigh 80 lb (36 kg) and have a projected area of 14.7 sq. ft. (1.37 sq. m).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED April 1, 2016
ENGINEER OF OPERATIONS

APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-02

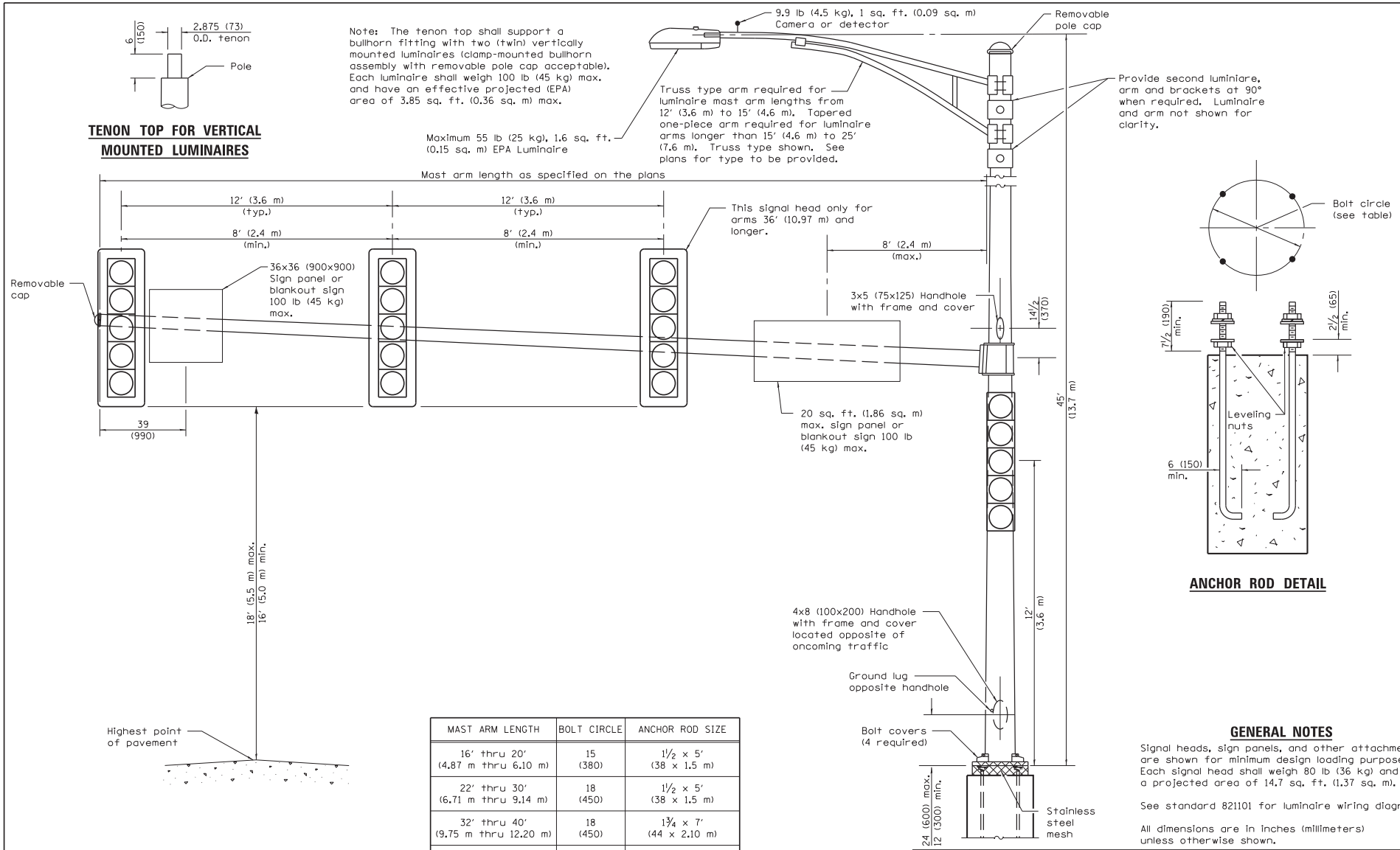
DATE	REVISIONS
4-1-16	Changed sign panel to 36x36.
	Added max weight of 100 lb.
	Modified dim. to outer signal.
1-1-12	Changed 2.5'x8' sign panel
	to 20 sq. ft. (1.86 sq. m)
	max.

STEEL MAST ARM ASSEMBLY AND POLE WITH DUAL MAST ARMS

STANDARD 877006-05

TENON TOP FOR VERTICAL MOUNTED LUMINAIRES

Note: The tenon top shall support a bullhorn fitting with two (twin) vertically mounted luminaires (clamp-mounted bullhorn assembly with removable pole cap acceptable). Each luminaire shall weigh 100 lb (45 kg) max. and have an effective projected (EPA) area of 3.85 sq. ft. (0.36 sq. m) max.



ANCHOR ROD DETAIL

MAST ARM LENGTH	BOLT CIRCLE	ANCHOR ROD SIZE
16' thru 20' (4.87 m thru 6.10 m)	15 (380)	1½ x 5' (38 x 1.5 m)
22' thru 30' (6.71 m thru 9.14 m)	18 (450)	1½ x 5' (38 x 1.5 m)
32' thru 40' (9.75 m thru 12.20 m)	18 (450)	1¾ x 7' (44 x 2.10 m)
42' thru 55' (12.80 m thru 16.80 m)	21 (535)	1¾ x 7' (44 x 2.10 m)

GENERAL NOTES

Signal heads, sign panels, and other attachments are shown for minimum design loading purposes only. Each signal head shall weigh 80 lb (36 kg) and have a projected area of 14.7 sq. ft. (1.37 sq. m).

See standard 821101 for luminaire wiring diagram.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF OPERATIONS

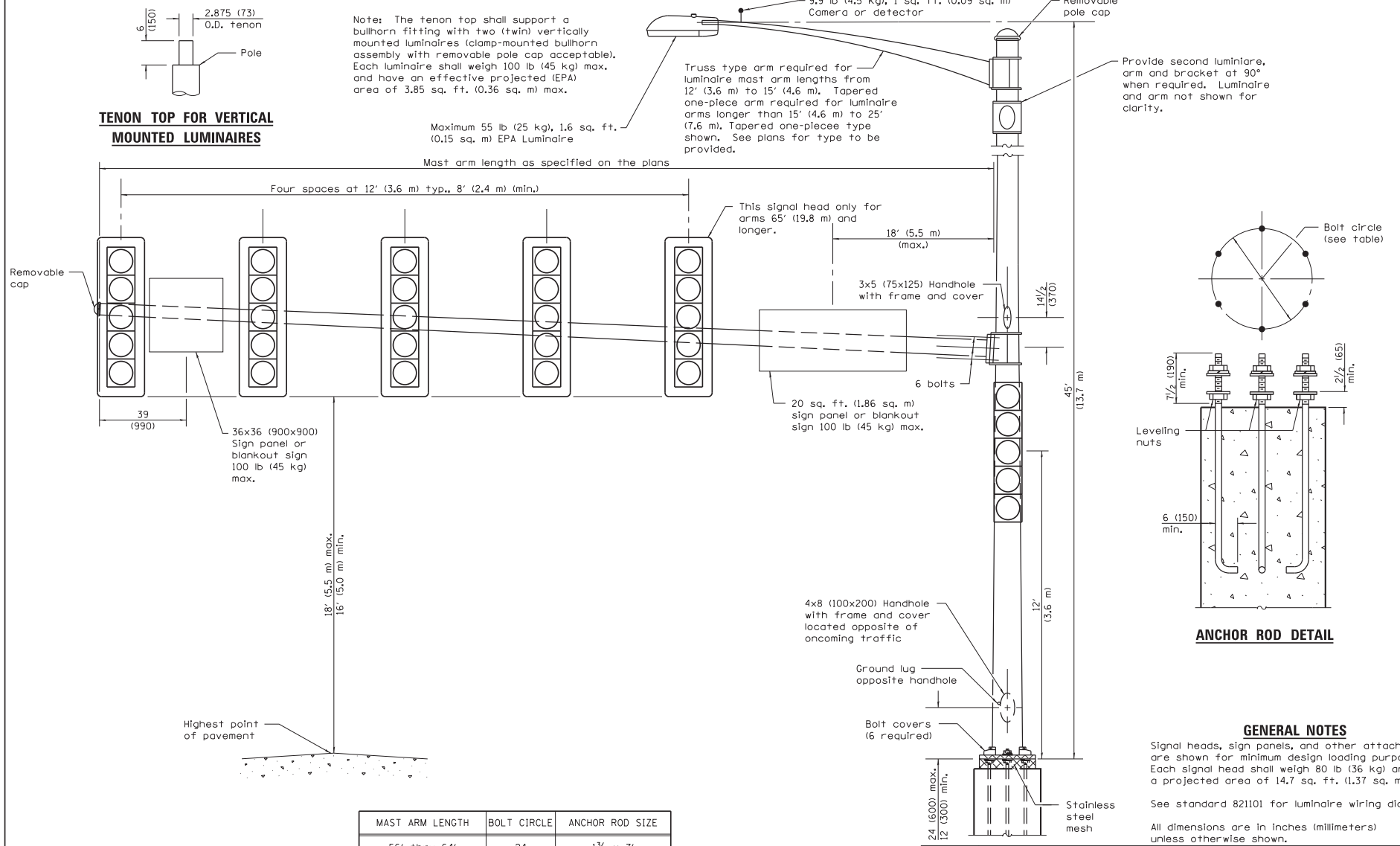
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-17

DATE	REVISIONS
1-1-17	Added 'max.' to luminaire
	weights and EPA's.
4-15-16	Added sec. lum. with arm
	and brackets when req.
	Added ref. to std. 821101.

STEEL COMB. MAST ARM ASSEMBLY AND POLE 16' THROUGH 55'

STANDARD 877011-08



TENON TOP FOR VERTICAL MOUNTED LUMINAIRES

ANCHOR ROD DETAIL

MAST ARM LENGTH	BOLT CIRCLE	ANCHOR ROD SIZE
56' thru 64' (17.1 m thru 19.8 m)	24 (610)	1¾ x 7' (44 x 2.10 m)
65' thru 75' (20.1 thru 22.9 m)	27 (686)	2 x 7'-6" (51 x 2.30 m)

GENERAL NOTES

Signal heads, sign panels, and other attachments are shown for minimum design loading purposes only. Each signal head shall weigh 80 lb (36 kg) and have a projected area of 14.7 sq. ft. (1.37 sq. m).

See standard 821101 for luminaire wiring diagram.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2017
ENGINEER OF OPERATIONS

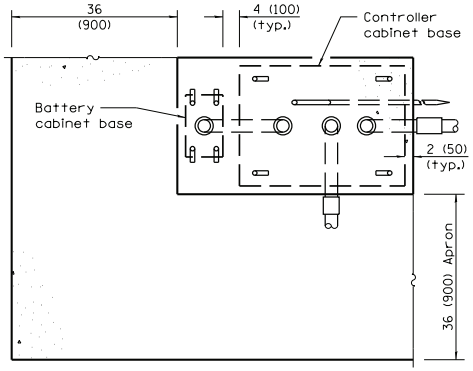
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-08

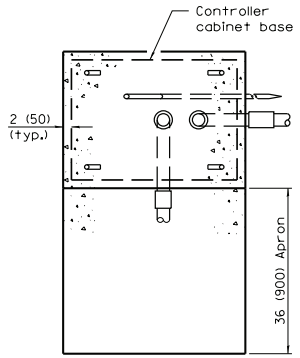
DATE	REVISIONS
1-1-17	Added 'max.' to luminaire
	weights and EPA's.
4-15-16	Added sec. lum. with arm
	and bracket when req.
	Added ref. to std. 821101.

STEEL COMB. MAST ARM ASSEMBLY AND POLE 56' THROUGH 75'

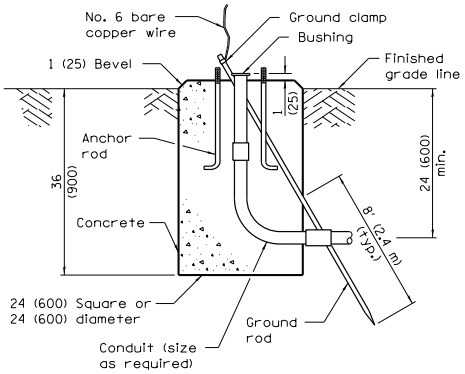
STANDARD 877012-05



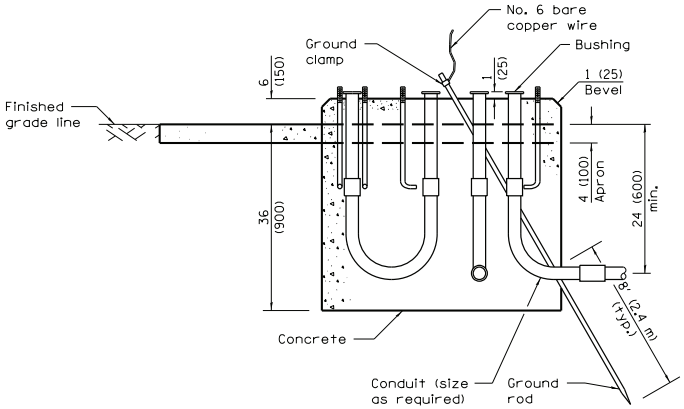
TOP VIEW



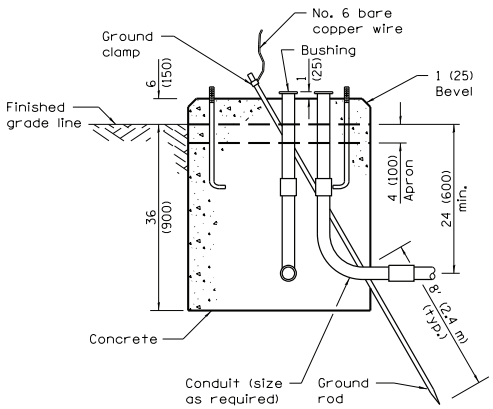
TOP VIEW



TYPE A



TYPE C
FOR GROUND MOUNTED
CONTROLLER CABINET
AND UPS BATTERY CABINET



TYPE D
FOR GROUND MOUNTED
CONTROLLER CABINET

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-15	Revised TYPE E detail.
1-1-12	Replaced rebar No.'s
	with 'Vertical' for TYPE E
	foundation detail.

CONCRETE FOUNDATION DETAILS

(Sheet 1 of 2)

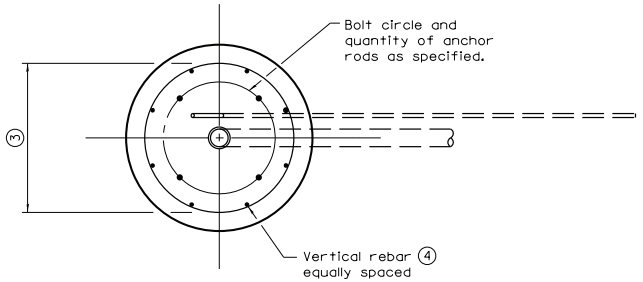
STANDARD 878001–10

Illinois Department of Transportation

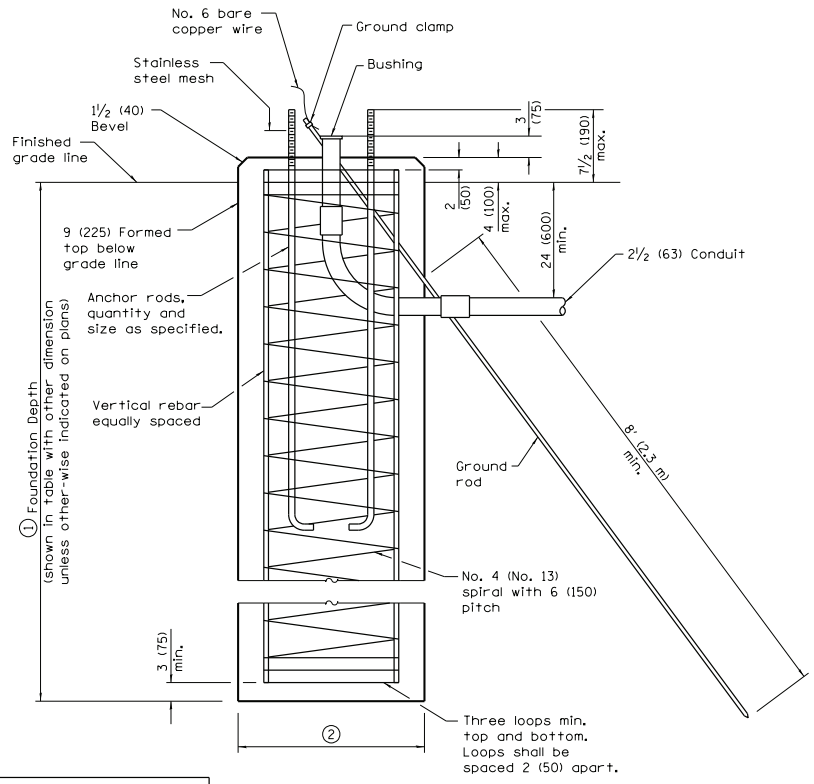
APPROVED January 1, 2015
ENGINEER OF OPERATIONS

APPROVED January 1, 2015
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-15



TOP VIEW



TYPE E

Mast Arm Length	① Foundation Depth •	② Foundation Diameter	③ Spiral Diameter	④ Quantity of Rebars	Size of Rebars
Less than 30′ (9.1 m)	10′-0″ (3.0 m)	30 (750)	24 (600)	8	6 (19)
Greater than or equal to 30′ (9.1 m) and less than 40′ (12.2 m)	13′-6″ (4.1 m)	30 (750)	24 (600)	8	6 (19)
	11′-0″ (3.4 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 40′ (12.2 m) and less than 50′ (15.2 m)	13′-0″ (4.0 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 50′ (15.2 m) and up to 55′ (16.8 m)	15′-0″ (4.6 m)	36 (900)	30 (750)	12	7 (22)
Greater than or equal to 56′ (16.8 m) and less than 65′ (19.8 m)	21′-0″ (6.4 m)	42 (1060)	36 (900)	16	8 (25)
Greater than or equal to 65′ (19.8 m) and up to 75′ (22.9 m)	25′-0″ (7.6 m)	42 (1060)	36 (900)	16	8 (25)

- For standard and combination mast arm assemblies. Foundation depths for standard dual mast arms with the longest arm length upto and including 55′ (16.8 m) shall be increased by 1′ (0.3 m) of that shown in the table, based on the longer of the two arms.

  These foundation depths are for sites which have cohesive soils (clayey silt, sandy clay, etc.) along the length of the shaft, with an average Unconfined Compressive Strength (Qu) > 1.0 tsf (100 kpa). This strength shall be verified by boring data prior to construction or with testing by the Engineer during foundation drilling. The Bureau of Bridges & Structures should be contacted for a revised design if other conditions are encountered.

Illinois Department of Transportation

APPROVED January 1, 2015
ENGINEER OF OPERATIONS

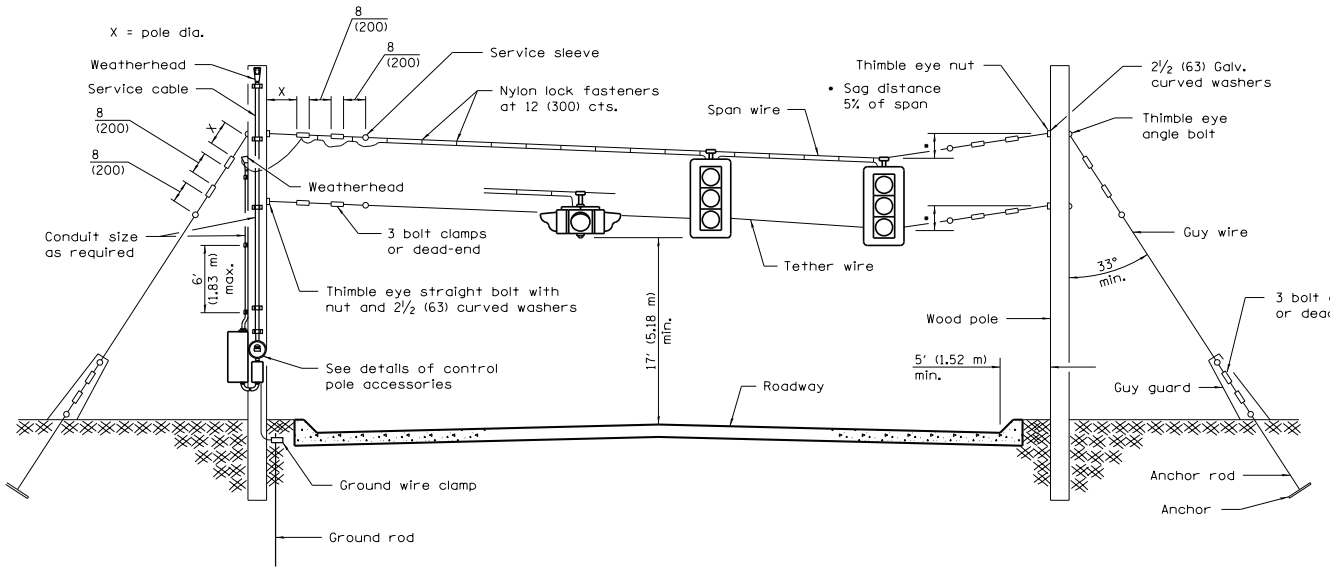
APPROVED January 1, 2015
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 20-1-1-02

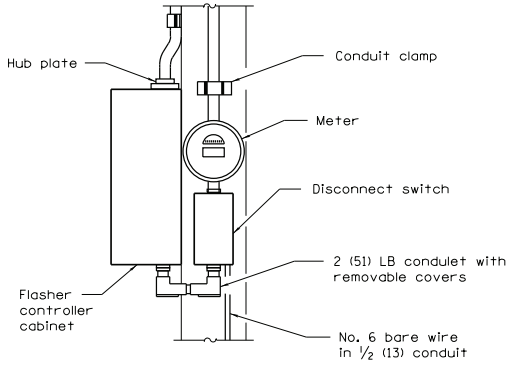
CONCRETE FOUNDATION DETAILS

(Sheet 2 of 2)

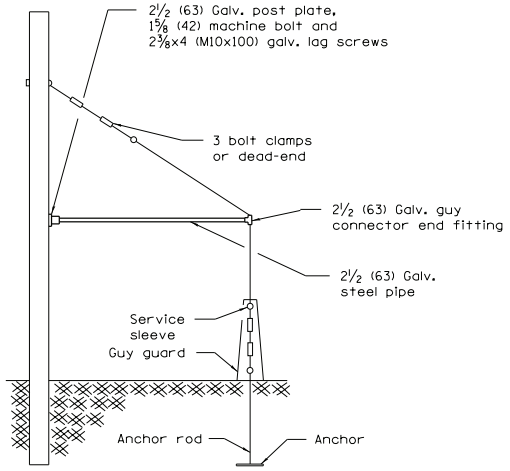
STANDARD 878001–10



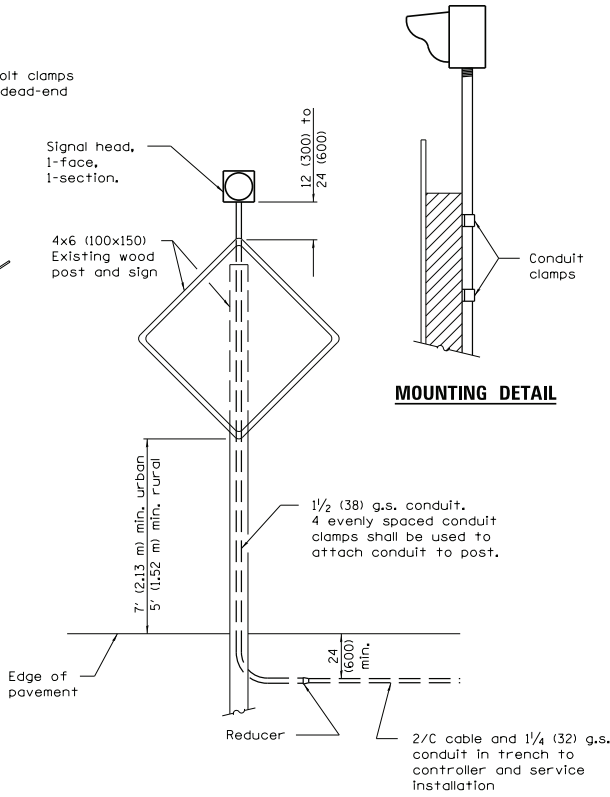
SPAN WIRE MOUNTED SIGNALS AND FLASHING BEACON



CONTROL POLE DETAIL



SIDEWALK GUY DETAIL



MOUNTING DETAIL

POST MOUNTED FLASHING BEACON

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2009
ENGINEER OF OPERATIONS

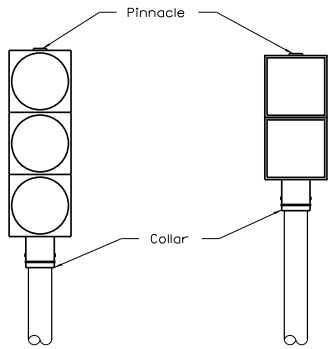
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-02

DATE	REVISIONS
1-1-09	Switched units to
	English (metric).
1-1-02	Renum. Standard 840001.

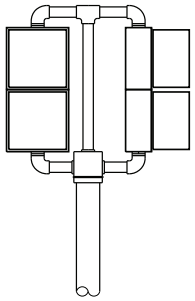
SPAN WIRE MOUNTED SIGNALS AND FLASHING BEACON INSTALLATION

STANDARD 880001–01



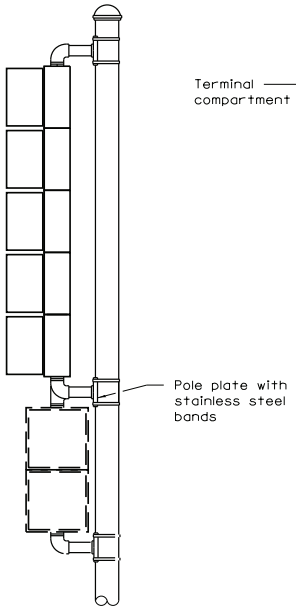
POST MOUNTED
TRAFFIC SIGNAL HEAD

ONE WAY



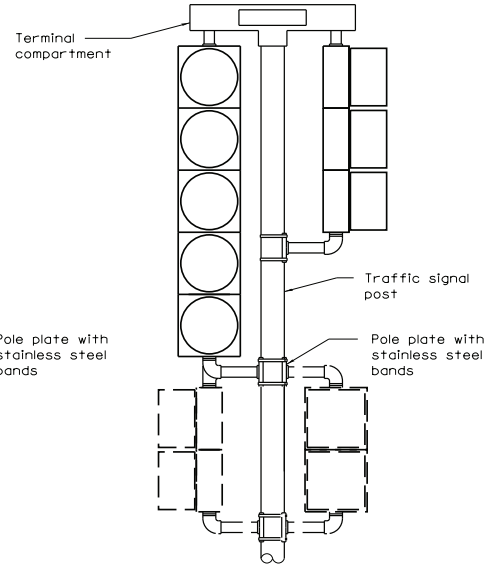
POST MOUNTED
PEDESTRIAN SIGNAL HEAD

TWO WAY



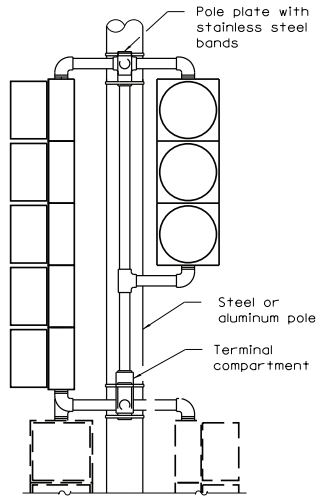
BRACKET MOUNTED
TRAFFIC SIGNAL HEAD

ONE WAY

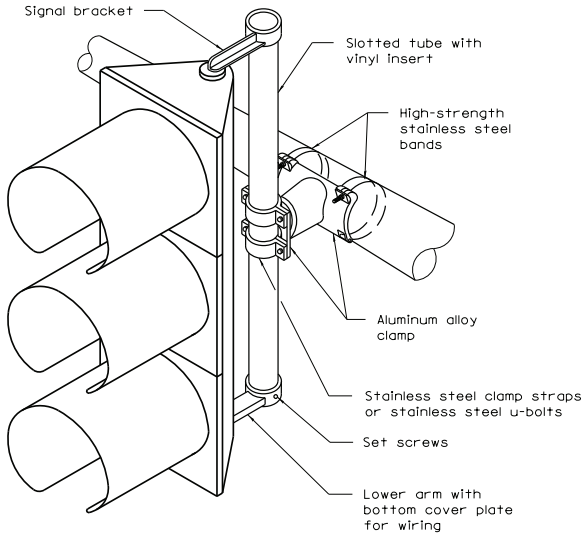


BRACKET MOUNTED
TRAFFIC SIGNAL HEAD

TWO WAY



BRACKET MOUNTED
TRAFFIC SIGNAL HEAD



STEEL MAST ARM MOUNTING

Illinois Department of Transportation

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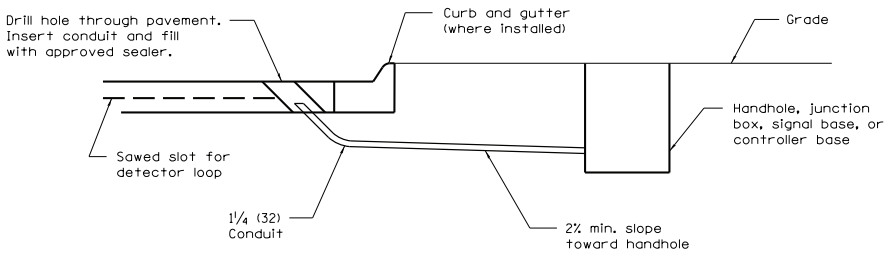
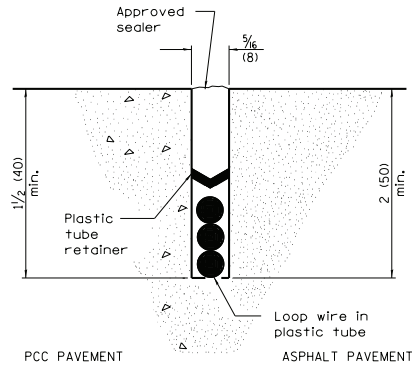
DATE	REVISIONS
1-1-09	Omitted note regarding
	units of length.
1-1-02	Renum. Standard 840006.

TRAFFIC SIGNAL MOUNTING DETAILS

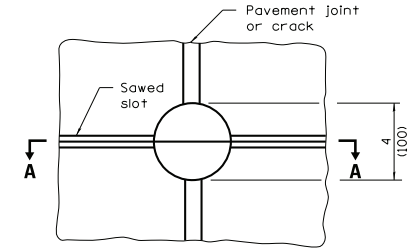
STANDARD 880006–01



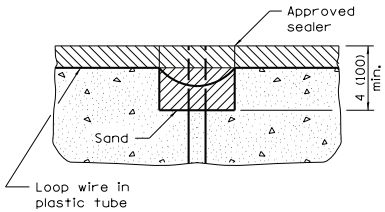
DETECTOR LOOP LEAD–IN



DETECTOR LOOP INSTALLATION



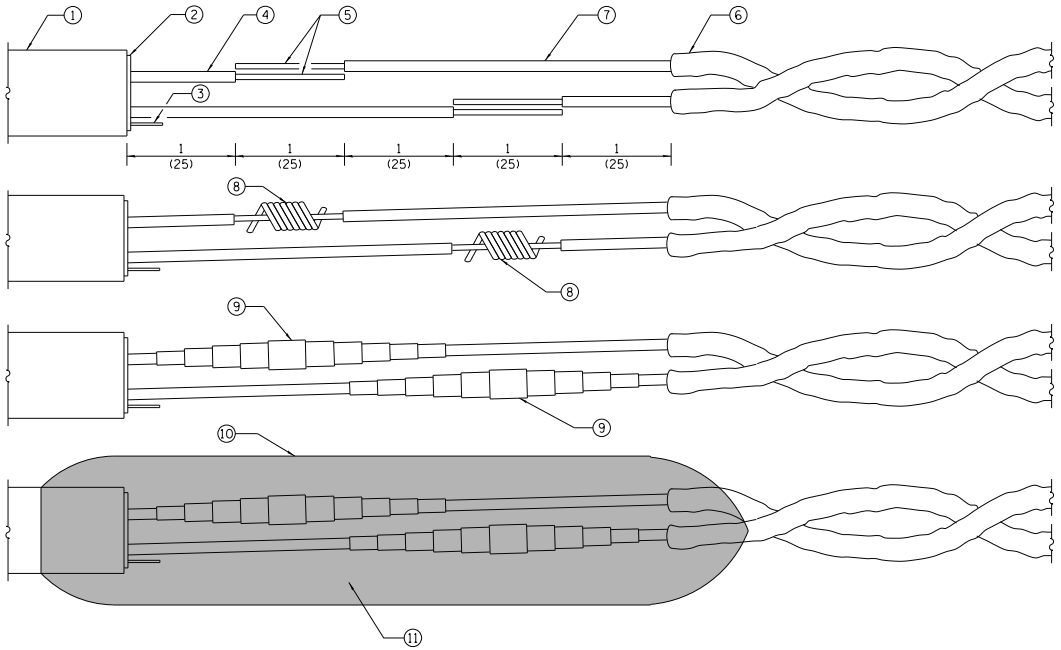
PLAN



SECTION A–A

NOTE
Loop wire shall follow saw cut to bottom, forming slack section at joint.

DETECTOR LOOP AT PAVEMENT JOINT OR PAVEMENT CRACK



LOOP WIRE AND LEAD–IN CABLE SPLICE

① = Lead-in cable (single pair or multipair)
② = Lead-in cable shield
③ = Lead-in cable shield drain-wire
④ = Lead-in cable insulated conductor
⑤ = Bare conductor
⑥ = Loop wire in tube
⑦ = Loop wire insulated conductor
⑧ = Twisted and resin soldered conductor
⑨ = Electrical tape insulated spice
⑩ = Rigid mold
⑪ = Waterproof and dielectric resin

All dimensions are in inches (millimeters) unless otherwise shown.

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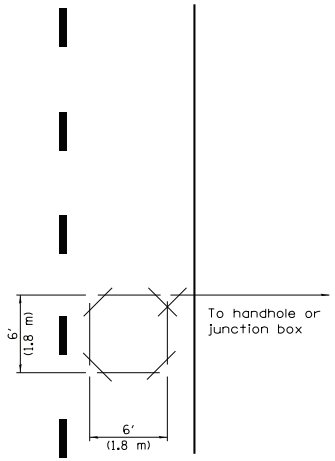
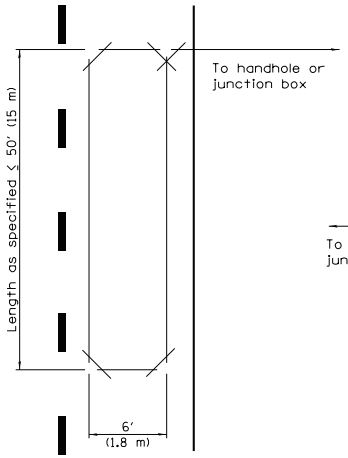
	English (metric)
1-1-02	Renum. Standard 846001.

DETECTOR LOOP INSTALLATIONS

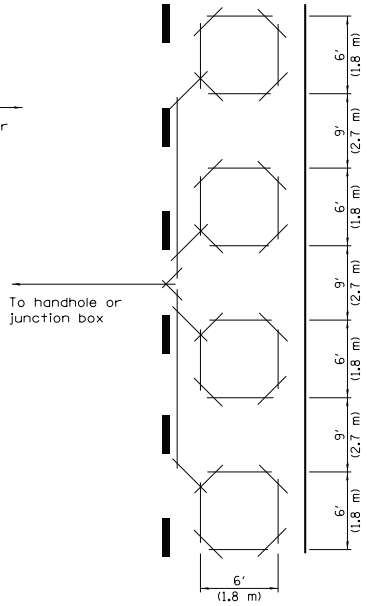
STANDARD 886001–01



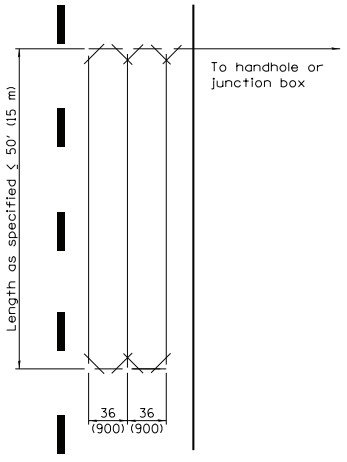
FOR POINT DETECTION
SHORT LOOP



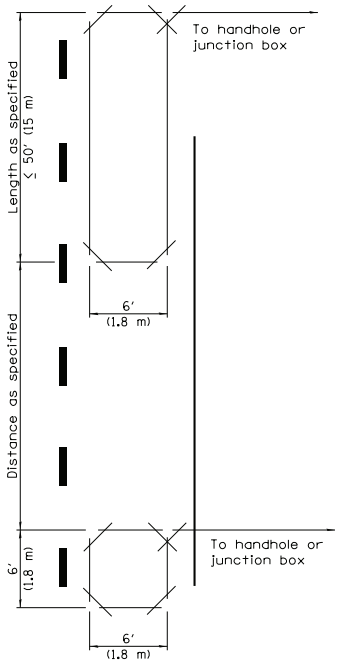
FOR PRESENCE DETECTION
LONG LOOP



FOR PRESENCE DETECTION
MULTIPLE LOOP IN SERIES

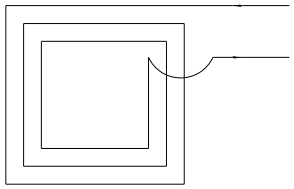


FOR PRESENCE DETECTION
QUADRUPOLE LOOP

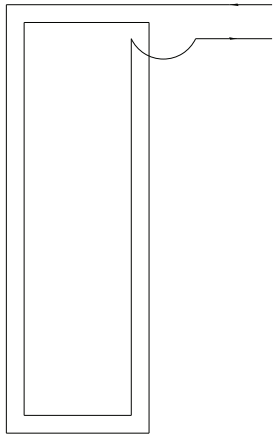


FOR EXTENDED-CALL DETECTION

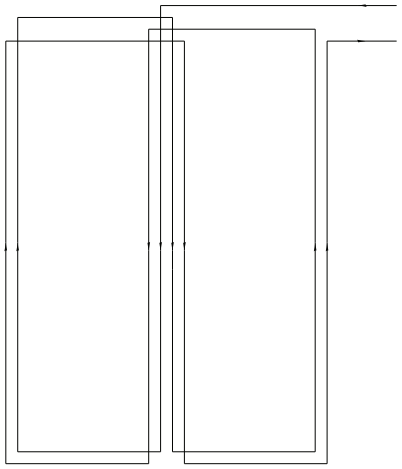
SLOT PLAN



SHORT LOOP



LONG LOOP



QUADRUPOLE LOOP

WIRING DIAGRAM

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TYPICAL LAYOUTS FOR DETECTION LOOPS

STANDARD 886006–01