NOTICE TO BIDDERS, SPECIFICATIONS, CONTRACT AND CONTRACT BOND

FOR
HIGHWAY IMPROVEMENT
County of Cook, Illinois

Toni Preckwinkle
Cook County Board President

John Yonan, P.E.
Superintendent
Cook County Department of Transportation and Highways

Shannon E. Andrews
Chief Procurement Officer

Letting: September 13, 2013 Bids are due no later than 10:00 am at the County Building, Room 1018 118 N. Clark Street, Chicago, Illinois 60602

SECTION: 14-8EMIM-42-GM **Route: Various Locations**

Known as Electrical and Mechanical Item Maintenance Various Locations

COOK COUNTY PROCUREMENT CONTRACT NO. : 1328-12938

NOTICE TO PROSPECTIVE BIDDERS: BIDDERS MUST RETURN THE ENTIRE BID

The Specifications can be downloaded at http://198.65.148.209/purchasing/public/index.php (follow online instructions to register, if you have not already).

Pre-Bid Meeting: 10:00am, Tuesday, August 20, 2013
Cook County Building
118 N. Clark Street, Room 1018
Chicago, Illinois 60602

APPROVED AS AMENDED
BY THE BOARD OF COOK COUNTY COMMISSIONERS
NOV 13 2013
COM

All questions are due on **August 23, 2013**, no later than 3:00pm Chicago time

Send all questions via e-mails to: cho.ng@cookcountyil.gov – Cho Ng, Senior Contract Negotiator

Bid Deposit: 5% of your bid
Bond: 100%

Bid Submitted by:

[X] Bid Bond is included [ ] A Cashier's Check or a Certified Check is Included

Name Meade, Inc. Phone No. 708-588-2500

Address 9550 W. 55th Street, Suite A

City McCook State IL Zip Code 60525

OFFICE OF THE CHIEF PROCUREMENT OFFICER
SHANNON E. ANDREWS
CHIEF PROCUREMENT OFFICER
118 North Clark Street, Room 1018 ● Chicago, Illinois 60602 ● (312) 603-5370

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PRESIDENT
Cook County Board of Commissioners

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16th District

ELIZABETH ANN DOODY GORMAN
17th District

August 28, 2013

ADDENDUM No. 1

Cook County Contract No. 1328-12938
Section No. 14-8EMIM-42-GM
Electrical and Mechanical Item Maintenance Various Locations

This Addendum No. 1 provides for revisions to the solicitation document outlined below and attached. Please acknowledge this Addendum No. 1 in your bid on page 117 of the solicitation.

1. Question and Response (8 pages)
2. Attachment A – Schedule of Prices (9 pages)
3. Attachment B – County Inventory (1 page)
4. Attachment C – Detection List (1 page)
5. Attachment D – Bid Information Cover (1 page)
6. Remove "Checklist for Bid Package Submission" page at the end of the solicitation document.

END OF SECTION

Shannon E. Andrews
Shannon E. Andrews
Chief Procurement Officer

Originate: Cho Ng
Date: August 28, 2013

Contract No. 1328-12938 – Addendum No. 1- Question and Response

Item	Question	Response
1	Pages 152/153 Vehicle This contract shall include the Contractor furnishing (for the duration of the Contract) one (1) vehicle to be used by the Mechanical Electrical, Architectural and Landscaping Division. Obviously this involves a new vehicle at the start of the first year of the contract. If the contract is renewed for the second year does this mean that an additional vehicle is required to go along with the first one, or just one in total?	The following statement shall be added in the end of first paragraph on page 153. "If this contract is renewed for a second year, this vehicle shall have no more than 60000 certified odometer miles as of December 31, 2014." If it is 60000 miles or over, a new vehicle is required.
2	Page 403 Item DX-7 Flap Gate Replacement The work shall consist of the removal and disposal of five (5) existing flap gates and furnishing and installing five (5) complete new elastomeric check valves and air/vacuum valves for the County Pump Station No. 1. This work will be paid for at the contract unit price LUMP SUM which shall be payment in full for the FLAP GATE REPLACEMENT, which price shall be payment in full for furnishing and installing all valves, piping and saddles, supports, anchors, excavation, core drilling and restoration etc. and shall include the removal and disposal of any gates being replaced by this item. On page 124 of the schedule of prices, pay item DX-7 shows a quantity of 1 EACH FLAT GATE REPLACEMENT. Please clarify whether the description on page 403 (5 flap gates lump sum) or the schedule of prices 1 EACH Flat gate replacement is correct for item DX-7?	The Unit and Description of Pay item DX-7 shown on page 124 shall be "LUMP SUM" and "FLAP GATE REPLACEMENT", not "EACH" and "FLAT GATE REPLACEMENT". See Revised Schedule of Price on Attachment A.
3	Page 78 indicates 6 originals of the Execution Pages to be submitted. Please clarify as page 81 indicates 3 originals of the appropriate Signature Page are required.	Page 78 is correct. On Page 81, replace – "Three originals" with "SIX ORIGINALS". Copy appropriate blank execution pages and use it for execution (six original execution pages in total).
4	Also, Bid Envelope (cover) indicates "Bid to be executed in triplicate", 459 pgs or just the contract signature page as identified on Pg 81 "THREE ORIGINALS" are required of the appropriate Signature Page	Replace Bid Envelope page with attached Bid information page to be affixed onto your bid submittal package. Page 1 Table of Content provides "documents to be submitted with Bids" information. (6 execution pages in total). See attachment D
5	Page 115 Bidding Supplemental: Indicates Each bidder shall furnish a financial statement and experience questionnaire and otherwise comply with all of the requirements of Article 102.01 of the Standard Specifications. No form provided for this information, is this the Prequalification Application submitted annually to the County? Is a copy of this required to be submitted with the bid?	The Prequalification Application does not need to be submitted annually to the County. The bidder shall prepare an affidavit, to be included with his bid (See Page 115 paragraph 6). The items demonstrating his ability to fulfill the requirements need to be attached with the affidavit shown on pages 115 and 116.

6	Any criteria for binding (or not) the proposal? i.e. hole punched and bound on the left hand side acceptable?	No Binding or hole punched. Submit bid loose with a binder clip.
7	Can the proposal be submitted 2 sided?	No, as the pages will be scanned and duplicated.
8	Section GC-19 (Minority and Women Business Enterprises) states goals of 25% to certified MBE's and 10% to certified WBE's; however, Section SC-04 (MBE/WBE Requirements for this Contract) states goals of 24% to certified MBE's and 10% to certified WBE's. Please clarify the appropriate MBE and WBE percentage amounts.	SC-04 shall govern. 24% MBE and 10% WBE.
9	Page 116, under NOTICE TO CONTRACTOR, states. "The Department is under no obligation to authorize NON-ROUTINE pay item work. NON-ROUTINE work will be authorized based on preventative maintenance assessments, ongoing operation needs and system inspections". In order to determine the required management, please provide a budgetary history of the dollars awarded under "NON-ROUTINE" and/or "SPECIALITY ITEM" work.	County does not keep that record.
10	Page 140, CONTROL OF WORK, states, "The Contractor shall continuously watch for System elements that are malfunctioning or in need of replacement. Malfunctioning equipment shall be repaired or replaced as part of routine maintenance. The Contractor shall, however, submit and Inspection Report, per Article 9, for items which are a safety risk or prone to imminent failure, and receive non-routine payment for the material portion of the repair". Please confirm that any work in need of replacement, that is identified on an Inspection Report, will be compensated under the NON-ROUTINE pay item.	Not all work identified by an inspection report will be compensated under Non-Route item, only items that are a safety risk.
11	Pages 146-149, PERSONNEL TRAINING PROGRAMS, state, "The Training programs shall be taught by qualified instructors, and where certification of the trainer is applicable, the trainer shall be certified. The Training Programs shall be submitted for approval by the Engineer at the Pre-Construction Meeting. All instructors and instruction materials shall be approved by the Engineer prior to all training session". Does Cook County have a list of qualified trainers?	Cook County does not have a list of qualified trainers.
12	Page 152, VEHICLE (GENERAL REQUIREMENT), states that the Contractor is to provide one (1) vehicle to be used by the Mechanical Electrical, Architectural and Landscaping Division. Please clarify the following: a. Does the vehicle have to be new? b. Approximately how many miles, per year, will the vehicle be	a. The vehicle shall be new. b. Since this is a new item in the contract, the County does not have an estimate. c. County does not have any history on the dollar amounts spent on tolling

	driven? c. Does Cook County have any history on the dollar amounts spent on tolling fees?	fees.
13	Page 155, AVAILABLE TEST EQUIPMENT, states the Contractor is to have the following equipment available. Does the Contractor have to own all equipment?	Yes, the Contractor must own all equipment.
14	Page 158, COMMUNICATION SET UP, states, "The Contractor shall have the following telephone and data communication lines installed: 1 - telephone line at the Dispatch Center for dial-up access to the Pump Station; 1 - dedicated telephone line at the Dispatch Center for receiving JULIE tickets; 2 - telephone lines to monitor Econolite and Eagle traffic signal systems; 1 - T1 line for video monitoring of the traffic signal intersections". Do these installations currently exist? If so, will the incoming Contractor be allowed to maintain the same installation by transferring service into their name/billing?	Yes. The Contractor will be required to set up their own phone lines.
15	Page 162, AEGIS ALARM SYSTEM TRANSITION, states, "...The Contractor shall accept the transfer of the existing Pump Station AEGIS telephone line from the outgoing Contractor". Is the Contractor responsible for charges associated with the telephone line?	Yes, the Contractor is responsible for charges associated with the telephone line.
16	Page 162, MAINTENANCE FACILITIES ALARM SYSTEM, states, "The Contractor shall accept the transfer of the existing Maintenance Facility Alarm Systems monitoring from the outgoing Contractor". Is the Contractor responsible for charges associated with the telephone line/alarm system?	Yes, the Contractor is responsible for charges associated with the telephone line.
17	Page 163, DAMAGED PARTS, MATERIAL and EQUIPMENT, states, "Unless specifically noted herein as a non-routine item, the Contractor is responsible under routine maintenance, for the replacement with new or repaired parts or equipment, for all County maintained system equipment found damaged or malfunctioning for any reason, including vehicular caused damage, third party damage, vandalism, natural causes, or incidental damages on or affecting system equipment as caused by the failure or the fault of utility company equipment". Please clarify NON-ROUTINE item.	NON-ROUTINE items are items not covered by route maintenance and additional work the County may want to be done.
18	Page 164, REIMBURSEMENT FROM THIRD PARTY FOR REPAIR OF DAMAGES, states "The County reserves the right to make recovery from third party or parties for damage to any part of the installations or systems and no part of such recovery or recoveries shall inure to the benefit of the Contractor". Please clarify that the Contractor is responsible for making all necessary repairs under ROUTINE MAINTENACE and at no additional cost to the County.	Contractor shall make all repairs under ROUTINE MAINTENACE and at no additional cost to the County. The Contractor is paid for ROUTINE MAINTENACE as contract pay items.

19	Page 166, ROUTINE MAINTENANCE, states, "The Contractor is to respond to all JULIE locates at no charge to the County". Please provide Contractor with a history of the number of JULIE calls received per year.	County has no record of JULIE history.
20	Page 170, REPORTS AND FORMS, states, "If the components fail, in the absence of an Inspection Report received, or if an Inspection Report had been submitted by the Contractor but the item was not acknowledged by the Engineer as prone to recurring or imminent failure or a safety risk, then the Contractor is obligated for the full cost of replacement or repair under routine maintenance". Please clarify that if Contractor has completed the INSPECTION REPORT and made recommendation for replacement that the County will reimburse Contractor for materials, even though Engineer may not have "acknowledge" the repair.	Even though Contractor has completed the INSPECTION REPORT and made recommendation, the Engineer shall determine the action required on the condition listed in the inspection report.
21	Page 172, REGULAR WORK, states, "The Engineer may authorize the Contractor to perform Regular work and furnish the necessary materials and parts provided that the 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. Authorization for Regular work shall be given by the Engineer in writing and when so authorized shall be performed by force account with a completion date". Please define Regular Work.	Regular Work is Non-Routine work and/or work requested by the County.
22	Page 174, CONTRACTOR'S RESPONSIBILITY FOR MATERIAL AND EQUIPMENT OWNED BY THE DEPARTMENT, states, The Contractor shall conduct an audit of the County Stock Inventory as of January 1, 2014, and create and initial County Stock Inventory Report, accounting for all parts, materials, and equipment". In order to accurately assess time needed to inventory, please provide a list of materials and quantities currently on hand. Does the County provide Contractor with a database for inventory?	Please see Attachment B. It is the Contractor's responsibility to keep a database on the County stock as stated on Page 175.
23	Page 176, CONTRACTOR'S RESPONSIBILITY FOR MATERIAL AND EQUIPMENT OWNED BY THE DEPARTMENT, states, "The Contractor shall provide the Engineer on December 1, 2014 (or December 1, 2015 if this contract is renewed) a list of all County stock inventory and its applicable location that is in his possession on that day. All stock inventory and/or other equipment or materials owned by the County in possession of the Contractor shall be moved to locations as designated by the Engineer, by a date to be specified by the Engineer (during December). The Contractor also shall provide all labor and equipment necessary to relocate any County equipment (stock) to new facilities. The Contractor shall use his own spare parts for contract work for the remaining days of the	The Contractor in current contract is responsible for moving equipment.

	term of the Contract". Which Contractor is responsible for moving the County stock; incoming or outgoing Contractor?	
24	Page 181, TRAFFIC SIGNAL INSTALLATIONS ROUTINE MAINTENANCE, states, "The Contractor shall at all times maintain stock of sufficient materials and equipment to make temporary and permanent repairs". Is this "stock" in addition to the County's stock? If so, please define "sufficient stock" by providing a list of materials with quantities.	Equipment used for repairs shall be the Contractor's equipment. It is Contractor's responsibility to determine the equipment needed to maintain the County system properly.
25	Page 185, RELAMP TRAFFIC SIGNAL SECTIONS AND CLEAN LENS, states, "Change all 135 watt and 90 watt signal lamps and wash all signal lenses including a LED once during the even contract year of this contract in APRIL and wash video detector lenses four times a year or more often if so directed by the Engineer at specific locations. All remaining incandescent lamps shall be relamped annually. All LED signals and LED street name signs to be relamped every eight (8) years from date of installation. Refer to Article X, List of LED Locations with installation date. This work is NOT to be done by the five (5) patrolmen, but is to be done by a separate crew". Based on the information provided in Tables IV (CCDOTH MAINTENANCE LIST) and Table VI (LIST OF LED TRAFFIC SIGNAL LOCATIONS), please confirm that all 345 intersections are LED signal heads and that no incandescent intersections exists? Please provide the quantity of LED Signal Sections that will need to be replaced, per intersection, since several LED locations will need to be relamped in this contract.	The bidder shall compare both Table IV and Table VI. County does not have a list of LED signal sections for each intersection. The bidder shall inspect in detail all of the locations as stated on Page 115.
26	Page 185, RELAMP TRAFFIC SIGNAL SECTIONS AND CLEAN LENS, states, " Steam clean and wash all painted components exposed to weather in even contract year or more often if so directed by the Engineer at specific locations". Is power washing an acceptable alternate?	No.
27	Page 186, RELAMP TRAFFIC SIGNAL SECTIONS AND CLEAN LENS, states, "All LED lamps shall be tested each year to determine the need for replacement". Please provide acceptable testing levels. Please clarify if this work can be completed by patrolmen during ROUTINE MAINTENANCE.	The Levels shall be as required by the ITE. This work can be done by patrolmen.
28	Page 189, VEHICLE DETECTOR MAINTENANCE AND REPLACMENT, states, "The Contractor shall provide licensed software for each of the Patrolmen who have video detection and/or radar detection in their respective area". Please provide a list of all video detection and/or radar detection intersections, with manufacture/operating system.	See Attachment C.

29	Page 193, TRAFFIC SIGNAL ROUTINE PAY ITEMS, states, "Purchase and maintain up to date licensed software to operate and maintain all Closed Loop Traffic-Signal Systems, Video and Detection Systems, and related management systems". Please provide a list of all software that is required.	They are Aries, MarcNX, Auto Scope, and Iteris.
30	Page 354, STREET AND ROADWAY LIGHTING SYSTEM ROUTINE MAINTENANCE, states, "Maintain in stock at all times sufficient assorted new Light Standards, Transformer Bases, Couplings, Mast Arms, Luminaires, Lamps, Breakers, Fuses, Switches, Timers, Relays, Splicing Materials, Cable, Cable-In-Duct, Conduits and Fittings, and other parts in order that all malfunctions from any cause whatsoever, can be temporarily or permanently corrected, and all defective or damaged components, except Light Standard Foundations, can be replaced". Is this "stock" in addition to the County's stock? If so, please define "sufficient stock" by providing a list of materials with quantities.	Equipment used for repairs shall be the Contractor's equipment. It is Contractor's responsibility to determine the equipment needed to maintain the County system properly.
31	Page 358, REPLACE LIGHTING EQUIPMENT, states, "Under this item, as listed in the Schedule of Prices, lighting equipment damaged by traffic shall be repaired by the Contractor. The labor under this item shall be paid for either as listed in the Schedule of Prices or as Regular Work under Article III Item 10 of this Contract when authorized by the Engineer". Please confirm that the replacement of damaged lighting equipment will be paid for separately.	Any street lighting items not listed as routine maintenance will be paid for separately.
32	Page 375, NAVIGATION LIGHTING SYSTEM ROUTINE MAINTENANCE, states, "Maintain in stock at all times sufficient assorted new Navigation Lights, Lenses, Lamps, Breakers, Fuses, Switches, Timers, Relays, Splicing Materials, Cable, Conduit and Fittings, and other parts in order that all malfunctions from any cause whatsoever, can be temporarily or permanently corrected, and all defective or damaged components, can be replaced". Is this "stock" in addition to the County's stock? If so, please define "sufficient stock" by providing a list of materials with quantities.	Equipment used for repairs shall be the Contractor's equipment. It is Contractor's responsibility to determine the equipment needed to maintain the County system properly.
33	Page 383, PUMPING STATION ROUTINE MAINTENANCE, states, "The Contractor shall maintain one AEGIS Silent Knight 8526 receiver in the Contractor's Dispatch Center, and all existing alarm transmitter units at each pump station including any new units added during the contract year, and all associated equipment". Does the County provide this equipment or is it the Contractor responsibility?	This is the Contractor's responsibility.
34	Page 389, PUMPING STATION ROUTINE MAINTENANCE, states, "The Contractor shall perform vibration analysis on all pumps semiannually". Does the County have a list of acceptable testing agencies?	County does not have a list of acceptable testing agencies.

35	Page 389, PUMPING STATION ROUTINE MAINTENANCE, states that oil samples are to be taken from the pump motors and submitted for testing. Does the County have a list of acceptable testing agencies?	The County does not have a list of acceptable testing agencies.
36	1. Page 42 (SC-6), REJECTION OF BIDS, states, "The Awarding Authority reserves the right to reject any bids for any of the conditions listed below: (c) Unbalanced bids in which the bid prices for some items are, in the judgment of the Awarding Authority, out of proportion to the bid prices for other items". In addition, Page 178, METHOD OF BILLING, states, "The Contractor is cautioned against unbalanced bidding and is directed to Article 102 of the Standard Specifications". Based on previous information provided by the County, is it fair to assume that the County will award Unbalanced Bids? A couple of Unit Price examples of Unbalanced Bids, from a previously awarded contract, are: a. AY-2 TEMPORARY TRAFFIC SIGNAL INSTALLATION TYPE-2 $300/EACH (Specifications for AY-2 call for the Contractor to furnish and install a complete temporary traffic signal installation which when completed and accepted shall become the Property of Cook County. The installation further states that the Controller and cabinet to meet all requirement of AZ-2, FULL ACTUATED CONTROLLER IN TYPE IV CABINET, which was priced at $2,000/EACH. This example only represents one component of the complete installation, yet it exceeds the Contract Unit Price for Item AY-2 by 650%). b. AZ-82 STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 56′ TO 65′) $100/EACH (Specifications for AZ-82 call for the Contractor to furnish and install the Steel Mast Arm Assembly and Pole, shroud, anchor bolts, nuts, washers and connected to a ground rod as shown on the Standard, complete. Current pricing for a similar Steel Mast Arm Assembly and Pole is in excess of $5,500, for just the Arm and Pole, exceeding the Contract Unit Price by 5500%.	The County Award Committee reviews the bids to ascertain their validity. When the bid is accepted, the Contractor is responsible for providing services for the costs as bid in the Contract.
37	In order to better assess whether an Incoming Contractor can offset initial "startup" cost (equipment purchases, material purchases, warehousing/office rental, service fees, staffing requirements, etc.) of a 1-year Maintenance Contract; will the County provide the annual Maintenance Budget? Currently Cook County Board of Commissioners has set aside $6,598,695 for the County Highway Department.	The budget is public knowledge which can be found on line. The Department is funded by MFT, MFT Illinois and Highway Funds.
38	Table IV, CCDOTH MAINTENANCE LIST, shown on Pages 429-442, indicate that there are 436 permanent Traffic Signal intersections to be maintained; however, the SCHEDULE OF PRICES, shown on Page 118, only calls for the Routine Maintenance of 320 Traffic Signal intersections. Is it safe for	Pages 429-442 does not indicate that there are 436 permanent Traffic Signal intersections to be maintained. That includes Traffic Signal Installation, Temporary Traffic Signal Installation,

	the Contractor to assume that only 320 Traffic Signal intersections will need to be maintained? ...or will the number of Traffic Signal intersections fluctuate throughout the year? If there is a fluctuation, please indicate how many intersections will under construction or maintenance by other Contractors, so that the Bidding Contractor may assess cost of Maintenance.	Flashing Beacons, Rectangular Rapid Flashing Beacons, Speed Sign Installations, Advanced Railroad Warning Systems, Closed Loop System Monitoring, Lighting Units, Navigation Lighting Systems on Structure Over Waterway, Bridge Cathodic Protection Systems, Pump Stations and Maintenance Facility Electrical Systems. 320 Traffic Signal intersections is an estimated quantity and will fluctuate throughout the year. Quantities included for bidding are only estimated and actual quantities may vary. See Page 115.
39	Is the Contract # 1328-12938 or Section # 14-8EMIM-42-GM to be entered as Project No. on pg 111 – "Contractor's Certification Concerning Labor Standards . . ." and pg 113 – " Subcontractor's Certification . . . "?	Both numbers shall be shown.
40	Prompt Pay Mechanisms: This contract is subject to the following payment obligations: As payments are made to the contractor, the contractor shall make corresponding payment within fifteen (15) calendar days to each subcontractor in proportion to the work satisfactorily completed by each subcontractor. This Special Provision does not create any rights in favor of any subcontractor against the County of Cook or authorize any cause of action against the County of Cook on account of any payment, nonpayment, delayed payment or interest claimed by application of this Prompt Payment Special Provision. The Cook County Department of Transportation and Highway will neither determine the reasonableness of any cause for delay of payment nor enforce any claim to payment, including interest. Moreover, the Cook County Department of Transportation and Highway will not approve any delay or postponement of the fifteen (15) day requirement. State law creates remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly, performed or material furnished. These remedies are lien against public funds set forth in Section 23© of the Mechanics Lien Act, 770 ILCS 60/23©, and a recovery on the contractors payment bond in accordance with the Public Construction Bond Act, 30 ILCS 550.	

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
TRAFFIC SIGNAL ROUTINE MAINTENANCE ITEMS:				PER MONTH PER INSTALLATION	
A-1	320	EACH	TRAFFIC SIGNAL INSTALLATION		-
A-2	10	EACH	TEMPORARY TRAFFIC SIGNAL INSTALLATION		-
A-3	5	EACH	FLASHING BEACON INSTALLATION - OVERHEAD		-
A-4	50	EACH	FLASHING BEACON INSTALLATION - POST MOUNTED		-
A-5	25	EACH	SOLAR FLASHING BEACON INSTALLATION - POST MOUNTED		-
A-6	3	EACH	RETANGULAR RAPID FLASHING BEACON		-
A-7	4	EACH	SPEED SIGN INSTALLATION		-
A-8	1	EACH	ADVANCED RAILROAD WARNING SYSTEM		-
A-9	1	EACH	CLOSED LOOP SYSTEM MONITORING		-
TRAFFIC SIGNAL SPECIALTY ITEMS:				UNIT COST	
AX-1	40	EACH	PAINT TRAFFIC SIGNAL INSTALLATION		-
AX-2	10	EACH	PAINT FLASHING BEACON INSTALLATION		-
AX-3	5	EACH	PAINT TEMPORARY TRAFFIC SIGNAL INSTALLATION		-
AX-4	5	EACH	PAINT TRAFFIC SIGNAL CONTROLLER CABINET		-
AY-1	10	EACH	TEMPORARY TRAFFIC SIGNAL INSTALLATION TYPE - 1		-
AY-2	5	EACH	TEMPORARY TRAFFIC SIGNAL INSTALLATION TYPE - 2		-
AY-3	10	EACH	REMOVE TEMPORARY TRAFFIC SIGNAL INSTALLATION		-
AZ-1	2	EACH	FULL ACTUATED CONTROLLER, IN TYPE III CABINET		-
AZ-2	10	EACH	FULL ACTUATED CONTROLLER, IN TYPE IV CABINET		-
AZ-3	10	EACH	FULL ACTUATED CONTROLLER, IN TYPE V CABINET		-
AZ-4	3	EACH	FULL ACTUATED CONTROLLER, IN TYPE IV CABINET - RAILROAD		-
AZ-5	10	EACH	FULL ACTUATED CONTROLLER, IN EXISTING CABINET		-
AZ-6	3	EACH	FLASHER CONTROLLER WITHOUT CABINET, SOLID STATE - NEMA		-
AZ-7	30	EACH	TRAFFIC SIGNAL CABINET LOAD SWITCH		-
AZ-8	25	EACH	INDUCTIVE LOOP DETECTOR		-
AZ-9	2	EACH	CABINET FOR EXISTING TRAFFIC SIGNAL CONTROLLER, TYPE III		-
AZ-10	2	EACH	CABINET FOR EXISTING TRAFFIC SIGNAL CONTROLLER, TYPE IV		-
AZ-11	2	EACH	CABINET FOR EXISTING TRAFFIC SIGNAL CONTROLLER, TYPE V		-
AZ-12	10	EACH	INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER CABINET		-
AZ-13	10	EACH	INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER		-
AZ-14	10	EACH	MODIFY EXISTING TRAFFIC SIGNAL CONTROLLER, PER PHASE		-

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
AZ-15	20	EACH	UPDATED PROM SET AT EXISTING LOCAL OR MASTER CONTROLLER		-
AZ-16	3	EACH	MASTER CONTROLLER		-
AZ-17	25	EACH	SYSTEM PROGRAMMING		-
AZ-18	36	EACH	CONTROLLER DATA CONVERSION		-
AZ-19	3	EACH	TRANSCEIVER		-
AZ-20	20	EACH	TRANSCEIVER, FIBER OPTIC		-
AZ-21	2	EACH	DIGITAL TIME SWITCH		-
AZ-22	10	EACH	CONFLICT MONITOR		-
AZ-23	5	EACH	POLICE DOOR MANUAL CONTROL		-
AZ-24	8	EACH	LIGHT DETECTOR AMPLIFIER		-
AZ-25	16	EACH	LIGHT DETECTOR		-
AZ-26	5	EACH	CONFIRMATION BEACON SYSTEM, LED		-
AZ-27	5	EACH	RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT		-
AZ-28	10	EACH	RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT		-
AZ-29	2	EACH	LIGHT TRANSMITTER		-
AZ-30	2000	FOOT	ELECTRIC CABLE IN CONDUIT NO. 20 3C, TWISTED AND SHIELDED		-
AZ-31	5	EACH	VIDEO DETECTION SYSTEM, COMPLETE INTERSECTION		-
AZ-32	10	EACH	VIDEO DETECTION SYSTEM, (SINGLE CAMERA/PROCESSOR)		-
AZ-33	6000	FOOT	DETECTOR LOOP, TYPE I		-
AZ-34	500	FOOT	DETECTOR LOOP, PRE-FORMED		-
AZ-35	2	EACH	WIRELESS DETECTION SYSTEM, COMPLETE INTERSECTION		-
AZ-36	4	EACH	WIRELESS DETECTION SYSTEM, SINGLE APPROACH		-
AZ-37	10	EACH	RADAR PRESENCE DETECTOR		-
AZ-38	2	EACH	WIRELESS INTERCONNECT SYSTEM		-
AZ-39	12	EACH	INSTALL TRAFFIC SIGNAL SECTION		-
AZ-40	12	EACH	INSTALL TRAFFIC SIGNAL LENS		-
AZ-41	10	EACH	SIGNAL HEAD, 1-FACE, 3 SECTION		-
AZ-42	5	EACH	SIGNAL HEAD, 1-FACE, 4 SECTION		-
AZ-43	10	EACH	SIGNAL HEAD, 1-FACE, 5 SECTION		-
AZ-44	5	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, 1-FACE, 3-SECTION		-
AZ-45	2	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, 1-FACE, 4-SECTION		-
AZ-46	5	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, 1-FACE, 5-SECTION		-

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
AZ-47	5	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, REMOTELY STEERABLE OPTICS, LED, 1-FACE, 3-SECTION		-
AZ-48	2	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, REMOTELY STEERABLE OPTICS, LED, 1-FACE, 4-SECTION		-
AZ-49	5	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, REMOTELY STEERABLE OPTICS, LED, 1-FACE, 5-SECTION		-
AZ-50	10	EACH	PEDESTRIAN SIGNAL HEAD, 1-FACE		-
AZ-51	10	EACH	SIGNAL HEAD, LED, 1-FACE, 1-SECTION		-
AZ-52	30	EACH	SIGNAL HEAD, LED, 1-FACE, 3-SECTION		-
AZ-53	8	EACH	SIGNAL HEAD, LED, 1-FACE, 4-SECTION		-
AZ-54	30	EACH	SIGNAL HEAD, LED, 1-FACE, 5-SECTION		-
AZ-55	10	EACH	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE		-
AZ-56	20	EACH	SIGNAL HEAD, LED, 1-FACE, 1-SECTION, RETROFIT		-
AZ-57	20	EACH	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, RETROFIT		-
AZ-58	8	EACH	SIGNAL HEAD, LED, 1-FACE, 4-SECTION, RETROFIT		-
AZ-59	20	EACH	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, RETROFIT		-
AZ-60	10	EACH	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, RETROFIT		-
AZ-61	20	EACH	CONFIRMATION BEACON, RETROFIT		-
AZ-62	30	EACH	PEDESTRIAN COUNTDOWN SIGNAL HEAD, LED, 1-FACE		-
AZ-63	8	EACH	ACCESSIBLE PEDESTRIAN SIGNAL		-
AZ-64	4	EACH	ILLUMINATED SIGN, LED		-
AZ-65	40	EACH	ILLUMINATED STREET NAME SIGN, LED (4 Foot)		-
AZ-66	40	EACH	ILLUMINATED STREET NAME SIGN, LED (6 Foot)		-
AZ-67	40	EACH	ILLUMINATED STREET NAME SIGN, LED (8 Foot)		-
AZ-68	16	EACH	RELOCATE ILLUMINATED STREET NAME SIGN		-
AZ-69	50	EACH	TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM		-
AZ-70	30	EACH	TRAFFIC SIGNAL BACKPLATE, REFLECTIVE		-
AZ-71	10	EACH	FLASHING BEACON, LOW MOUNTED, ONE FACE		-
AZ-72	5	EACH	FLASHING BEACON, SPAN WIRE MOUNTED, ANY NUMBER OF FACES AS ONE SIGNAL HEAD		-
AZ-73	4	EACH	FLASHING BEACON, LOW MOUNTED, ONE FACE, SOLAR POWERED		-
AZ-74	4	EACH	FLASHING BEACON, LOW MOUNTED, ONE FACE, SOLAR POWERED WITH PROGRAMMABLE TIME CLOCK		-
AZ-75	20	EACH	UNINTERRUPTIBLE POWER SUPPLY SYSTEM INSTALLATION		-
AZ-76	30	EACH	RELOCATE EXISTING TRAFFIC SIGNAL HEAD		-
AZ-77	2	EACH	RELOCATE EXISTING TRAFFIC SIGNAL POST		-
AZ-78	20	EACH	TRAFFIC SIGNAL POST, 3' TO 18' LONG		-

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
AZ-79	5	EACH	PEDESTRIAN PUSHBUTTON POST		-
AZ-80	20	EACH	PEDESTRIAN PUSHBUTTON		-
AZ-81	1	EACH	STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 16' TO 28')		-
AZ-82	1	EACH	STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 30' TO 44')		-
AZ-83	1	EACH	STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 46' TO 55')		-
AZ-84	1	EACH	STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 56' TO 65')		-
AZ-85	1	EACH	STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 66' TO 75')		-
AZ-86	2	EACH	INSTALL EXISTING MAST ARM ASSEMBLY AND POLE		-
AZ-87	2	EACH	REMOVE EXISTING MAST ARM ASSEMBLY AND POLE		-
AZ-88	2	EACH	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT		-
AZ-89	4	EACH	REMOVE EXISTING TRAFFIC SIGNAL HEAD		-
AZ-90	4	EACH	REMOVE EXISTING TRAFFIC SIGNAL SECTION		-
AZ-91	20	EACH	REMOVE EXISTING TRAFFIC SIGNAL POST		-
AZ-92	3000	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL - NO. 14 2C		-
AZ-93	3000	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL - NO. 14 3C		-
AZ-94	3000	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL - NO. 14 5C		-
AZ-95	3000	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL - NO. 14 7C		-
AZ-96	5000	FOOT	ELECTRIC CABLE IN CONDUIT, LEAD IN - NO. 14 1 PAIR		-
AZ-97	500	FOOT	ELECTRIC CABLE IN CONDUIT, SERVICE - NO. 4 2C		-
AZ-98	500	FOOT	ELECTRIC CABLE IN CONDUIT, SERVICE - NO. 6 2C		-
AZ-99	14000	FOOT	ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 14 3C, TYPE SOOW		-
AZ-100	3000	FOOT	ELECTRIC CABLE IN CONDUIT, COMMUNICATION - NO. 18 3 PAIR		-
AZ-101	500	FOOT	ELECTRIC CABLE IN CONDUIT, RAILROAD - NO. 14 3C		-
AZ-102	3000	FOOT	ELECTRIC CABLE IN CONDUIT, VIDEO DETECTOR		-
AZ-103	500	FOOT	ELECTRIC CABLE - AERIAL, NO. 4, 2C		-
AZ-104	500	FOOT	ELECTRIC CABLE - AERIAL, NO. 6, 2C		-
AZ-105	2000	FOOT	ELECTRIC CABLE - AERIAL, NO. 14, 2C		-
AZ-106	2000	FOOT	ELECTRIC CABLE - AERIAL, NO. 14, 3C		-
AZ-107	3000	FOOT	ELECTRIC CABLE - AERIAL, NO. 14, 5C		-
AZ-108	3000	FOOT	ELECTRIC CABLE - AERIAL, NO. 14, 7C		-
AZ-109	3000	FOOT	ELECTRIC CABLE - AERIAL,LEAD IN - NO. 14, 2C, TWISTED AND SHIELDED		-

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
AZ-110	2000	FOOT	ELECTRIC CABLE, RADAR PRESENCE DETECTOR		-
AZ-111	5000	FOOT	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125 MM 12F SM 24F		-
AZ-112	3000	FOOT	FIBER OPTIC CABLE - AERIAL, NO. 62.5/125 MM 12F SM 24F		-
AZ-113	5000	FOOT	ELECTRIC CABLE IN CONDUIT, TRACER NO. 14 1C		-
AZ-114	30	EACH	SPLICE FIBER IN CABINET		-
AZ-115	1000	FOOT	ELECTRIC CABLE IN CONDUIT, GROUNDING NO. 6 1C		-
AZ-116	25	EACH	GROUNDING EXISTING HANDHOLE FRAME AND COVER		-
AZ-117	40	FOOT	CONCRETE FOUNDATION, TYPE A		-
AZ-118	40	FOOT	CONCRETE FOUNDATION, TYPE C		-
AZ-119	20	FOOT	CONCRETE FOUNDATION, TYPE D		-
AZ-120	60	FOOT	CONCRETE FOUNDATION, TYPE E (30", 36" OR 42")		-
AZ-121	5	EACH	MODIFY EXISTING TYPE D FOUNDATION		-
AZ-122	100	FOOT	PAVEMENT MARKING LINE 24 INCH		-
LIGHTING ROUTINE MAINTENANCE ITEMS:				PER MONTH PER INSTALLATION	
B-1a	25	EACH	LIGHTING UNIT, LESS THAN 38 FEET, MERCURY VAPOR		-
B-1b	1	EACH	LIGHTING UNIT, LESS THAN 38 FEET, INCANDESCENT		-
B-1c	1	EACH	LIGHTING UNIT, LESS THAN 38 FEET, FLUORESCENT		-
B-1d	150	EACH	LIGHTING UNIT, LESS THAN 38 FEET, HIGH PRESSURE SODIUM		-
B-1e	100	EACH	LIGHTING UNIT, LESS THAN 38 FEET, LOW PRESSURE SODIUM		-
B-1f	60	EACH	LIGHTING UNIT, LESS THAN 38 FEET, METAL HALIDE		-
B-1g	6	EACH	LIGHTING UNIT, LESS THAN 38 FEET, LED		-
B-2a	1	EACH	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET, MERCURY VAPOR		-
B-2b	1	EACH	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET, INCANDESCENT		-
B-2c	70	EACH	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET, HIGH PRESSURE SODIUM		-
B-2d	1	EACH	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET, METAL HALIDE		-
B-2e	10	EACH	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET, LED		-
B-3a	2	EACH	LIGHTING UNIT, 80 FEET OR MORE, HIGH PRESSURE SODIUM		-
B-3b	1	EACH	LIGHTING UNIT, 80 FEET OR MORE, METAL HALIDE		-
LIGHTING SPECIALTY ITEMS:				UNIT COST	
BU-1	5	EACH	REPLACE LIGHT STANDARD SHAFT (LABOR ONLY)		-
BU-2	5	EACH	REPLACE ONE OR TWO MAST ARMS ON ONE LIGHT STANDARD (LABOR ONLY)		-

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME: _____

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
BU-3	1	EACH	REPLACE TRANSFORMER BASE (LABOR ONLY)		-
BU-4	5	EACH	REPLACE ONE OR TWO LUMINAIRES ON ONE LIGHT STANDARD (LABOR ONLY)		-
BU-5a	5	EACH	FURNISH LIGHT STANDARD SHAFT 32' OR LESS, 8" DIA. (MATERIAL ONLY)		-
BU-5b	1	EACH	FURNISH LIGHT STANDARD SHAFT 33' OR MORE, 8" DIA. (MATERIAL ONLY)		-
BU-5c	1	EACH	FURNISH LIGHT STANDARD SHAFT 40' OR LESS, 10" DIA. (MATERIAL ONLY)		-
BU-5d	5	EACH	FURNISH LIGHT STANDARD SHAFT 41' OR MORE, 10" DIA. (MATERIAL ONLY)		-
BU-5e	1	EACH	FURNISH LIGHT STANDARD SHAFT 80' OR MORE, GREATER THAN 10" DIA. (MATERIAL ONLY)		-
BU-6a	2	EACH	FURNISH MAST ARM 10' OR LESS (MATERIAL ONLY)		-
BU-6b	3	EACH	FURNISH MAST ARM 11' OR MORE (MATERIAL ONLY)		-
BU-7a	10	EACH	FURNISH LUMINAIRE AND LAMP, MERCURY VAPOR, 175W TO 400W (MATERIAL ONLY)		-
BU-7b	1	EACH	FURNISH LUMINAIRE AND LAMP, MERCURY VAPOR, 1000W (MATERIAL ONLY)		-
BU-7c	10	EACH	FURNISH LUMINAIRE AND LAMP, HIGH PRESSURE SODIUM, UNDER 200W (MATERIAL ONLY)		-
BU-7d	10	EACH	FURNISH LUMINAIRE AND LAMP, HIGH PRESSURE SODIUM, 200W TO 400W (MATERIAL ONLY)		-
BU-7e	5	EACH	FURNISH LUMINAIRE AND LAMP, HIGH PRESSURE SODIUM, 1000W (MATERIAL ONLY)		-
BU-7f	5	EACH	FURNISH LUMINAIRE AND LAMP, LOW PRESSURE SODIUM, UNDER 60W (MATERIAL ONLY)		-
BU-7g	5	EACH	FURNISH LUMINAIRE AND LAMP, LOW PRESSURE SODIUM, 90W TO 180W (MATERIAL ONLY)		-
BU-7h	1	EACH	FURNISH LUMINAIRE AND LAMP, METAL HALIDE, 175W TO 400W (MATERIAL ONLY)		-
BU-7i	1	EACH	FURNISH LUMINAIRE AND LAMP, METAL HALIDE, 1000W (MATERIAL ONLY)		-
BU-8	1	EACH	REPLACE HIGH MAST LOWERING DEVICE		-
BU-9	5	EACH	REPLACE LIGHT STANDARD FOUNDATION, CONCRETE		-
BU-10	5	EACH	REPLACE LIGHT STANDARD FOUNDATION, METAL		-
BW-1	1	EACH	PAINT HIGH MAST LIGHT POLE INCLUDING BLAST CLEANING		-
BW-2	1	EACH	DESIGN AND IMPLEMENT A DECAL BASED NUMBERING SYSTEM FOR ALL HIGHWAY LIGHTING SYSTEMS		-
BX-1	25	EACH	GROUP REPLACEMENT OF MERCURY VAPOR LAMPS		-
BX-2	180	EACH	GROUP REPLACEMENT OF HIGH PRESSURE SODIUM LAMPS		-
BX-3	100	EACH	GROUP REPLACEMENT OF LOW PRESSURE SODIUM LAMPS		-
BX-4	10	EACH	GROUP REPLACEMENT OF METAL HALIDE LAMPS		-
BY-1	1000	FOOT	REPLACE FAULTY CABLE FOR STREET AND ROADWAY LIGHTING SYSTEM		-
BZ-1	50	EACH	SPECIAL CLEANING OF LUMINAIRES, STANDARD UNIT OVER 30'		-
BZ-2	1	EACH	SPECIAL CLEANING OF LUMINAIRES, HIGH MAST UNIT OVER 80', WITH LOWERING DEVICE		-
BZ-3	50	EACH	SPECIAL CLEANING OF LUMINAIRES, UNDERPASS UNIT UNDER 30'		-

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
NAVIGATION LIGHTING AND BRIDGE CATHODIC PROTECTION ROUTINE MAINTENANCE ITEMS:				PER MONTH PER INSTALLATION	
C-1	5	EACH	NAVIGATION LIGHTING SYSTEM		-
C-2	5	EACH	BRIDGE CATHODIC PROTECTION SYSTEM		-
NAVIGATION LIGHTING AND CATHODIC PROTECTION SPECIALTY ITEMS:				UNIT COST	
CX-1	25	EACH	REPLACE BROKEN LENSES		-
CY-1	12	EACH	REPLACE NAVIGATION LIGHTING UNIT		-
CZ-1	10	EACH	REBRAZE LEAD WIRE TO STEEL REINFORCEMENT BAR		-
CZ-2	500	SQ FT	REPAIR ANODE MESH		-
PUMPING STATION ROUTINE MAINTENANCE ITEMS:				PER MONTH PER INSTALLATION	
D-1	1	EACH	PUMPING STATION NO. 1, East Lake Avenue @ N. Branch, Chicago River: 4-15,000 GPM pumps, 1-500 GPM sump pump		-
D-2	1	EACH	PUMPING STATION NO. 2, East Lake Avenue @ C & NW RR E. of Pfingsten: 4-4,200 GPM pumps		-
D-3	1	EACH	PUMPING STATION NO. 3, Sauk Trail @ ICG RR: 3-2,000 GPM pumps		-
D-4	1	EACH	PUMPING STATION NO. 4, Lake-Cook Road @ METRA RR W. of Waukegan Road: 3-4,200 GPM pumps		-
D-5	1	EACH	PUMPING STATION NO. 5, Lake-Cook Road @ UP RR W. of Skokie Road: 3-2,160 GPM pumps		-
D-6	1	EACH	PUMPING STATION NO. 6, 171st Street @ Ashland Avenue: Submersible Type with 2-3,590 GPM pumps (High Flow) and 2-500 GPM pumps (Low Flow),1/3 HP Sump Pump		-
D-7	1	EACH	PUMPING STATION NO. 7,Green Bay Road @ Lake Avenue:Submersible Type with 2-275 GPM pumps		-
PUMPING STATION SPECIALTY ITEMS:				UNIT COST	
DX-1	6	EACH	SPECIAL CLEANING OF WET PITS		-
DX-2	500	SQ YD	ASPHALT DRIVEWAY PAVEMENT		-
DX-3	1000	SQ FT	EXTERIOR BRICK COATING		-
DX-4	24	HOUR	INFRARED THERMOGRAPHY INSPECTION SERVICE		-
DX-5	5	EACH	HID LIGHT FIXTURE		-
DX-6	6	EACH	SWITCH GEAR SYSTEM INSPECTION		-
DX-7	1	LUMP SUM	FLAP GATE REPLACEMENT		-
EXTRA WORK SPECIALTY ITEMS:					
EX-1	100000	UNIT	REGULAR WORK SPECIAL	$ 1.00	100,000.00
EX-2	1000	HOUR	LABOR TO UPGRADE ALL ELECTRICAL SYSTEMS EXCEPT THOSE IN THE MAINTENANCE FACILITIES		-
MAINTENANCE FACILITIES ROUTINE MAINTENANCE ITEMS:				PER MONTH PER INSTALLATION	
F-1	5	EACH	MAINTENANCE FACILITIES ELECTRICAL SYSTEMS ROUTINE MAINTENANCE		-
MAINTENANCE FACILITIES SPECIALTY ITEMS:				UNIT COST	
FX-1	1000	HOUR	LABOR TO UPGRADE ELECTRICAL SYSTEMS		-

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
FX-2	2	EACH	THERMO GRAPHIC INSPECTION		-
GENERAL SPECIALTY ITEMS:				UNIT COST	
GX-1	100	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, - 1 1/4 INCH		-
GX-2	100	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 1 1/2 INCH		-
GX-3	6500	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2 INCH		-
GX-4	900	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2 1/2 INCH		-
GX-5	900	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3 INCH		-
GX-6	900	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3 1/2 INCH		-
GX-7	2500	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4 INCH		-
GX-8	400	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 5 INCH		-
GX-9	500	FOOT	UNDERGROUND CONDUIT, P.V.C., 1 1/2 INCH		-
GX-10	500	FOOT	UNDERGROUND CONDUIT, P.V.C., 2 INCH		-
GX-11	100	FOOT	UNDERGROUND CONDUIT, P.V.C., 2 1/2 INCH		-
GX-12	100	FOOT	UNDERGROUND CONDUIT, P.V.C., 3 INCH		-
GX-13	100	FOOT	UNDERGROUND CONDUIT, P.V.C., 4 INCH		-
GX-14	100	FOOT	UNDERGROUND CONDUIT, P.V.C., 5 INCH		-
GX-15	1000	FOOT	COILABLE NON-METALLIC CONDUIT		-
GX-16	5000	FOOT	REMOVE ELECTRIC CABLE FROM CONDUIT		-
GX-17	2	EACH	SERVICE INSTALLATION, POLE MOUNT		-
GX-18	2	EACH	SERVICE INSTALLATION, GROUND MOUNT		-
GX-19	2	EACH	COMBINATION LIGHTING AND TRAFFIC SIGNAL SERVICE INSTALLATION, POLE MOUNTED		-
GX-20	5	EACH	RELOCATE SERVICE INSTALLATION		-
GX-21	10	EACH	HANDHOLE		-
GX-22	10	EACH	HEAVY DUTY HANDHOLE		-
GX-23	2	EACH	DOUBLE HANDHOLE		-
GX-24	5	EACH	REBUILD EXISTING HANDHOLE		-
GX-25	10	EACH	REMOVE EXISTING CONCRETE FOUNDATION		-
GX-26	10	EACH	REMOVE EXISTING CONCRETE HANDHOLE		-
GX-27	25	EACH	DRILL EXISTING HANDHOLE		-
GX-28	100	SQ FT	MEDIAN REMOVAL AND REPLACEMENT		-
GX-29	100	SQ FT	SIDEWALK REMOVAL AND REPLACEMENT		-

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Project: Electrical and Mechanical Item Maintenance Various Locations

SCHEDULE OF PRICES

SUMMARY SHEET

Section No.: 14-8EMIM-42-GM

ITEM	MONTHLY ROUTINE MAINTENANCE PER ITEM		YEARLY ROUTINE MAINTENANCE PER ITEM	YEARLY SPECIAL ITEM	
A-1 THRU A-9	$ -	X12	$ -	----------	----------
AX-1 THRU AX-4	----------		----------	$ -	----------
AY-1 THRU AY-3	----------		----------	-	----------
AZ-1 THRU AZ-122	----------		----------	-	----------
SUBTOTAL A	----------		----------	----------	$ -
B-1 THRU B-3	-	X12	-	----------	----------
BU-1 THRU BU-10	----------		----------	-	----------
BW-1 THRU BW-2	----------		----------	-	----------
BX-1 THRU BX-4	----------		----------	-	----------
BY-1	----------		----------	-	----------
BZ-1 THRU BZ-3	----------		----------	-	----------
SUBTOTAL B	----------		----------	----------	$ -
C-1 THRU C-2	-	X12	-	----------	----------
CX-1	----------		----------	-	----------
CY-1	----------		----------	-	----------
CZ-1 THRU CZ-2	----------		----------	-	----------
SUBTOTAL C	----------		----------	----------	$ -
D-1 THRU D-7	-	X12	-	----------	----------
DX-1 THRU DX-7	----------		----------	-	----------
SUBTOTAL D	----------		----------	----------	$ -
EX-1	----------		----------	100,000.00	----------
EX-2	----------		----------	-	----------
SUBTOTAL E	----------		----------	----------	$ 100,000.00
F-1	-	X12	-	----------	----------
FX-1 THRU FX-2	----------		----------	-	----------
SUBTOTAL F	----------		----------	----------	$ -
GX-1 THRU GX-29	----------		----------	-	----------
SUBTOTAL G	----------		----------	----------	$ -
				GRAND TOTAL ITEMS A-1 THRU GX-29	

1328-12938 – Addendum No. 1 - ATTACHMENT B – County Inventory

Controller	Serial No.	Spare Equipment	Quantity
ASC2-2100	6137	Load Switch	40
EPAC 300	102681	Video Camera	9
ASC 2M/1000	280	Relay	44
ASC 3	7593	BIU	4
ASC 3	7600	Power Supply	3
ASC 3	7563	Video monitor	2
ASC 8000	2851	TS1-Detector cards	46
ASC 8000	9099	TS2-Detector cards	4
ASC 8000	9941	TS1-Power Supply	7
ASC 8000	2876	Micro Sense Detector	18
ASC 8000	2848	Detector System-signal Channel	20
ASC 8000	3781	Detector System-Double Channel	
ASC 8000	3484	Meg Detector	4
ASC 8000	9175	Sarasota	1-SN 5167
ASC 8000	8446	Conflict Monitor	27
ASC2/1000	2358	Video Monitor 20082	1
ASC2/2000	266	Eagle Video Camera	3
ASC2/2000	307	Type III Cabinet	3
ASC2/2000	462	Type IV Cabinet	10
ASC2M/1000	7140	WOOD PLES(MIN 45')	24
ASC2S/1000	2468	3-section heads	48
ASC2S/2100	603	5-section heads	24
EPAC 300	34868	Steel Mast Poles+30' Arms	5
EPAC 300	37992	Steel Mast Poles+40'-45'Arms	2
EPAC 300	51212	35' High and 9' arm	4
EPAC 300	47258	24' MA pole	1
EPAC 300	54376	LED Ped Head	4
EPAC 300	54365	LED 5-Section Head	1
EPAC 300	62334	LED 3-Section Head	1
EPAC 300	31353	14' Post	1
EPAC 300	29378	LED 3-Section Head	1
EPAC 300	29106	LED Green Arrow	3
Traconex T 390	T8995	LED 3-Section Head	4
ASC8000	8435	LED 5-Section Head	4
Traconex T 390	T9810	LED 1-3Section 1-5Section	4
Offset Coordinator	DC300/0393-00104	LED Ped Head 1-Face	2
Offset Coordinator	DC300/0992-00101	LED Ped Head 2-Face	1
		LED Ped head	6
		LED 3-Section Head	11
		LED 5-Section Head	3
		Pushbutton	6

1328-12938 – Addendum No. 1 - ATTACHMENT C – Detection List

Street Name	Street Name	Detection equipment
127th Street	I-355 Ramp A+B(West Ramp)	AUTOSCOPE
127th Street	I-355 Ramp C+D(East Ramp)	AUTOSCOPE
175th Street	Oak Park Avenue	Iteris
Shoe Factory Road	Beverly Road	VIDEO
Shoe Factory Road	Rohrssen Road	VIDEO
Lake Cook Road	Rt 41 NB Ramps	AUTOSCOPE
Lake Cook Road	Rt 41 SB Ramps	AUTOSCOPE
Roselle Road	Northwest Toll Road Ramps	AUTOSCOPE
Euclid Avenue	Sycamore Lane	Video American Dynamic
Sanders Road	Lindenwood Lane	Iteris
Roselle Road	Elgin - O'Hare Ramp A & D	AUTOSCOPE
Roselle Road	Elgin - O'Hare Ramp B & C	AUTOSCOPE
Old Orchard Road	Lavergne Street	Wavetronics
Old Orchard Road	Lawler	Wavetronics
94th Ave	Boardwalk Lane	Interceptor
87th Ave	Roberts Road	Sensys
Lake Cook Road	Buffalo Road	Video Encoder-Optelecom Under Construction
Lake Cook Road	Weiland Ave	Video Encoder-Optelecom Under Construction
Lake Cook Road	Waukegan(IL43)	Video Encoder-Optelecom Under Construction
Lake Cook Road	Red Oak Ln	Video Encoder-Optelecom Under Construction
Lake Cook Road	east of Old Hicks	Video Encoder-Optelecom Under Construction
Lake Cook Road	Arlington Height Road	Video Encoder-Optelecom
Lake Cook Road	Tri-State Toll Road(I-294) Ramp	Video Encoder-Optelecom
Lake Cook Road	Rt 41 SB Ramps	Video Encoder-Optelecom

COUNTY OF COOK

BID INFORMATION

BIDDER'S INFORMATION:

VENDOR: _____

ADDRESS: _____

_____

Contact Name: _____

Phone Number: _____

(PLEASE FILL THIS INFORMATION)

CONTRACT NO.: 1328-12938

ELECTRICAL AND MECHANICAL ITEM MAINTENANCE AT VARIOUS LOCATIONS

BID OPENING DATE: FRIDAY, SEPTEMBER 13, 2013 @ 10:00 AM

This bid must be deposited in the Bid Box at the Office of the Chief Procurement Officer. You may obtain a receipt of your submittal from the front desk prior to depositing into Bid Box.

NOTICE TO BIDDERS:

- **AFFIX THIS PAGE ONTO YOUR BID PACKAGE.**

BID BOX

Office of the Chief Procurement Officer

County Building

118 N. Clark Street, Room 1018

Chicago, IL 60602

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COUNTY OF COOK

CHICAGO, ILLINOIS
NOTICE

TO CONTRACTORS FOR A COOK COUNTY DEPARTMENT OF TRANSPORTATION AND HIGHWAYS IMPROVEMENT

Notice is hereby given that sealed bids for a Department of Transportation and Highways Improvement in the County of Cook, Illinois, as described below, will be received at Room 1018, County Building, and 118 North Clark Street, Chicago, Illinois

until 10:00 a.m. Friday, September 13, 2013 and then publicly opened and read aloud

Improvement Electrical and Mechanical Item Maintenance Township: Various

From: Various Locations To: Various Locations

Route Various Section: 14-8EMIM-42-GM

Cook County Purchasing Contract No.: **1328-12938**

LOCATION OF IMPROVEMENT

The proposed improvement is part of the public highway system in the County of Cook, State of Illinois, located by section and route before mentioned, and is indicated on the map showing the County Highway System on file in the office of the County Clerk and also in the office of the Illinois Department of Transportation, Division of Highways, Springfield, Illinois.

Various locations throughout Cook County

DESCRIPTION OF IMPROVEMENT

The contract is for maintenance of (1) Traffic Signal Installations, (2) Street and Roadway Lighting Systems, (3) Navigation Lighting Systems, Bridge Cathodic Protection Systems, (4) Storm Water Pump Station Systems, and (5) Maintenance Facilities Electrical Systems and their appurtenances, located in Cook County.

The Contractor, for specified unit prices listed under schedule of prices, shall: (1) furnish all labor and provide materials to maintain the respective installations and systems, in first class working order and operating condition at all times, (2) make permanent repairs to damaged equipment, (3) clean, repair, perform preventative maintenance, and overhaul specified equipment at stated intervals of time, (4) provide the necessary transportation for workmen, material, and equipment used to execute the terms of the Contract, (5) PROVIDE CONTINUIOUS MAINTENANCE AND REPAIR SERVICE, INCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS to correct any malfunction of equipment or effect any temporary emergency repairs to missing, defective, displaced or damaged equipment resulting from any cause in the shortest possible time, (6) patrol and inspect the respective systems for lamps and other failures and non-operative equipment, shall replace electric lamps in all systems as required, and (7) execute Specialty Items for unit prices as directed by the Engineer, and perform all activities required herein.

INSTRUCTIONS TO BIDDERS

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INSTRUCTIONS TO BIDDERS

IB-01 DEFINITIONS

A. **BIDDER** shall mean the individual or business entity submitting a Bid Proposal to supply any or all of the services or goods required by the Contract Documents.

B. **BID PROPOSAL** shall mean the Contract Documents as completed by the Bidder which constitutes the Bidder's offer.

C. **CONTRACT** shall mean the agreement between the County and Contractor as set forth in the Contract Documents and as awarded by the Cook County Board of Commissioners.

D. **CONTRACT DOCUMENTS** shall mean collectively the Instructions to Bidders, General Conditions, Special Conditions, Specifications, Attachments, Addenda, if any, Bid Proposal, Site Inspection Certificate, Contractor Certifications and Forms for Minority Participation. The above documents shall be considered as one integrated document setting forth the obligations of the parties.

E. **CONTRACTOR** shall mean the individual or business entity submitting a Bid Proposal and to whom the Cook County Board of Commissioners awards the Contract.

F. **COUNTY** shall mean the County of Cook, a body politic and corporate of the State of Illinois.

G. **DIRECTOR** shall mean the person or persons authorized by the County to act in connection with this Contract. Such authorization shall not include any power to change the scope of the Contract or to obligate the County to pay additional sums beyond the amount of the Contract awarded by the Cook County Board of Commissioners.

H. **CHIEF PROCUREMENT OFFICER** shall mean the Chief Procurement Officer of the County of Cook whose duties and responsibilities are more particularly described in the Illinois Compiled Statutes 1994, 55 ILCS 5/5-36003.

I. **SPECIFICATIONS** shall mean the description of the required services, Contract Goods, equipment, personnel, volume and use statistics and all requirements for the scope of work set forth in the Contract Documents.

IB-02 PREPARATION OF PROPOSALS

The Bidder shall prepare one (1) copy of its Bid Proposal on the proposal forms within the Contract Documents and three (3) execution pages, all with original signatures in the back of the document. Unless otherwise stated, all blank spaces on the proposal forms shall be fully completed. Bidder bears all responsibility for error or omissions in the submission of the Bid Proposal.

IB-03 SITE INSPECTION CERTIFICATE

When required in the legal advertisement or the Special Conditions, the Bidder shall visit the job-site and shall carefully examine and become familiar with all conditions which may in any way affect the performance of the Contract and shall submit certification of such inspection along with the Bid Proposal. The dates and conditions of the site inspection are determined by County.

IB-04 BID DEPOSIT

When required in the legal advertisement, the Bid Proposal shall be accompanied by cash, cashier's check, certified check, bank draft or surety bond in the amount shown in the legal advertisement or as may be prescribed in these Contract Documents. A certified or cashier's check shall be drawn on a responsible bank doing business in the United States and shall be made payable to the order of the County of Cook. The Surety issuing the bond must have a general rating of "A", and shall be a Class VII or higher in the financial size category as defined by Best's Key Rating Guide - Property and Casualty. Failure to submit the bid deposit shall constitute an informal Bid Proposal and such Bid Proposal shall be rejected.

The Bidder hereby agrees that the bid deposit shall be forfeited to the County as liquidated damages and not as penalty in the event Bidder fails to comply with IB-11, IB-13, or otherwise fails or refuses to honor the Bid Proposal upon award of the Contract by the County.

The bid deposit of all bidders will be returned, with the exception of the Contractor, after the County has awarded the Contract. The bid deposit of the Contractor will be returned after the Contract has been awarded and the Contractor has submitted all insurance documentation and the Performance and Payment Bond, as required by the Contract Documents.

IB-05 EXCEPTIONS

If any Bidder intends to take any deviations or exceptions from the Specifications or other Contract Documents, Bidder shall submit to the Chief Procurement Officer a written request for a deviation or exception prior to the date and time of Bid Opening. If the Chief Procurement Officer considers such deviation or exception acceptable, the Chief Procurement Officer shall issue an Addendum setting forth such deviation or exception from the Specifications or other Contract Documents which shall be applicable to all Bidders submitting a Bid Proposal. If no Addendum is issued by the Chief Procurement Officer, then such deviation or exception shall be deemed rejected. The County may reject any Bid Proposal containing deviations or exceptions not previously accepted through a written Addendum. A copy of such Addendum will be mailed or delivered to each Bidder receiving a set of such Contract Documents. Bidder shall acknowledge receipt of each Addendum issued in the space provided on the proposal form. All written requests for deviations or exceptions shall be addressed to:

Chief Procurement Officer
Office of the Chief Procurement Officer
118 North Clark Street, Room 1018
Chicago, Illinois 60602
(Reference the Project Title and Contract Number)

IB-06 BIDDER WARRANTIES

The submission of a Bid Proposal shall constitute a warranty that: (i) Bidder has carefully and thoroughly reviewed the Contract Documents and has found them complete and free from ambiguities and sufficient to describe the Contract work; (ii) Bidder and all workmen and/or employees it intends to use in the performance of this Contract are skilled and experienced in the type of work or services called for by the Contract Documents; and (iii) neither the Bidder nor any of its employees, agents, suppliers or subcontractors have relied on any verbal representations from the County, or any of the County's employees, agents, or consultants, in preparing the Bid Proposal.

IB-07 SUBMISSION OF BID PROPOSALS

All Bidders shall submit the bound copy of the sealed Bid Proposal in an envelope and shall deposit them in the bid box located in the County Board Office of the Chief Procurement Officer, Room 1018, County Building, 118 North Clark Street, Chicago, Illinois 60602 by the date and hour for the Bid Opening as shown in the legal advertisement. The sealed envelope submitted by the Bidder shall carry the following information on the face of the envelope: Bidder's name, address, subject matter of Bid Proposal, advertised date of Bid Opening and the hour designated for Bid Opening as shown in the legal advertisement.

IB-08 BID PROPOSALS TO CONFORM TO REQUIREMENTS OF LEGAL ADVERTISING COOK COUNTY ORDINANCE CHAPTER 34, ARTICLE IV, DIVISION 2, SECTION 34-151.

The County will not entertain or consider any Bid Proposals: (i) received after the exact time specified in the legal advertisements; (ii) not accompanied by the required bid deposit; or (iii) in any other way failing to comply fully with the conditions stated in the legal advertisement therefore.

IB-09 COMPETENCY OF BIDDER

No Bid Proposal will be accepted from or Contract awarded to a Bidder that is in arrears or is in default to the County upon any debt or Contract, or that is a defaulter, as surety or otherwise upon any obligation to said County, or has failed to perform faithfully any previous contract with the County.

IB-10 LOCAL BUSINESS PREFERENCE COOK COUNTY ORDINANCE CHAPTER 34, ARTICLE IV, DIVISION 2, SECTION 34-151(p).

The Chief Procurement Officer shall, in the purchase of all supplies and services funded with County dollars by competitive sealed bidding, accept the lowest bid price or lowest evaluated bid price from a responsive or responsible local business, provided that the bid does not exceed the lowest bid price or lowest evaluated bid price from a responsive and responsible non-local business by more than five percent (5%).

"Local Business" shall mean a person authorized to transact business in this State and having a bona fide establishment for transacting business located within Cook County at which it was actually transacting business on the date when any competitive solicitation for a public contract is first advertised or announced and further which employs the majority of its regular, full time work force within Cook County, including a foreign corporation duly authorized to transact business in this State and which has a bona fide establishment for transacting business located within Cook County at which it was actually transacting business on the date when any competitive solicitation for a public contract is first advertised or announced and further which employs the majority of its regular, full time work force within Cook County.

IB-11 CONSIDERATION OF BID PROPOSALS

The County reserves the right to reject or accept any or all Bid Proposals, to extend the bidding period, to waive technicalities in the Contract Documents and/or to direct that the project be abandoned or rebid prior to award of the Contract.

After Bid Proposals are opened and read aloud, they will be evaluated based on the price, conformance with Specifications, the responsibility of the various Bidders taking into consideration factors including, but not limited to, those noted in IB-09, IB-10 and responsiveness to the County's Minority and Female Owned Business Ordinance.

IB-12 WITHDRAWAL OF BID PROPOSALS

Bidders may withdraw their Bid Proposals at any time prior to the time specified in the legal advertisement as the date and hour set for the Bid Opening. However, no Bidder shall withdraw, cancel or modify its Bid Proposal for a period of ninety (90) calendar days after said advertised Bid Opening.

IB-13 ACCEPTANCE OF PROPOSALS

The Chief Procurement Officer shall notify the successful Bidder, in writing, of award of the Contract by the County within ninety (90) days from the Bid Opening date. Upon receipt of the Notice of Award, the Contractor shall promptly secure, execute and deliver to the Chief Procurement Officer any documents required herein.

IB-14 PERFORMANCE AND PAYMENT BOND

When required in the legal advertisement or Special Conditions, the successful Bidder shall furnish a Performance and Payment Bond in the full amount of the Contract on the County Form, a specimen of which is provided herein. The Surety issuing the Performance and Payment Bond must have a general rating of "A" and shall be a Class VII or higher in the financial size category as defined by Best's Key Rating Guide-Property and Casualty.

In the event that the Bidder fails to furnish the Performance and Payment Bond within fourteen (14) calendar days after service of the Notice of Award, the County may elect to retain Bidder's bid deposit as liquidated damages and not as a penalty and the Contract may be terminated. The parties agree that the sum of the bid deposit is a fair estimate of the amount of damages that the County will sustain due to the Bidder's failure to furnish the Performance and Payment Bond and the termination of the Contract.

IB-15 PRICES FIRM

All prices quoted in the Bid Proposal shall be firm and will not be subject to increase during the term of the Contract awarded to the Contractor, except as otherwise provided in these Contract Documents.

IB-16 CASH BILLING DISCOUNTS

Cash billing or percentage discounts for payment will not be considered in evaluating Bid Proposals.

IB-17 CATALOGS

Each Bidder shall submit in TRIPLICATE, where necessary or when requested catalogs, descriptive literature, and detailed drawings, fully detailing features, designs, construction, appointment and finishes not covered in the Specifications but necessary to fully describe the materials, Contract Goods or work proposed to be furnished.

IB-18 AUTHORIZED DEALER/DISTRIBUTOR

The Bidder must be: (i) the manufacturer; (ii) an authorized dealer/distributor; or (iii) able to promptly secure the necessary genuine parts, assemblies and/or accessories as supplied by the original equipment manufacturer (O.E.M.), along with any necessary schematics or drawings to fulfill the contractual obligations. Further, the Bidder must be able to furnish original product warranty and manufacturer's related services such as product information, product re-call notices, etc. Proof of ability to transfer product warranty to the County is to be submitted with the Bid Proposal.

IB-19 TRADE NAMES

In cases where an item is identified by a manufacturer's name, trade name, catalog number, or reference, it is understood that the Bidder proposes to furnish the item identified and does not propose to furnish an "equal" unless the proposed "equal" is definitely indicated therein by the Bidder. The County reserves the right to review and award alternate Contracts, if the commodity and/or service is suitable to its requirement.

The reference to the above catalog is intended to be descriptive and not restrictive and to indicate to the prospective Bidder articles that shall be satisfactory. Bid Proposals on other makes and catalogs shall be considered, provided each Bidder states on the face of the Bid Proposal exactly what is being proposed to be furnished or forwards with the Bid Proposal an illustration, or other descriptive matter which shall clearly indicate the character of the article covered by the Bid Proposal.

The County reserves the right to approve as an equal, or to reject as not being an equal, any article the Bidder proposes to furnish which contains major or minor variations from Specifications but which may comply substantially.

IB-20 SAMPLES

Bidders may be asked upon request of the Chief Procurement Officer or the Director to furnish and deliver a representative sample sufficient to effectively evaluate each item listed in the Bid Proposal. All samples must be delivered F.O.B. DESTINATION, FREIGHT PREPAID to an identified delivery location within five (5) business days of the request. Samples submitted must be identical to those specified in the Bid Proposal. Submission of other than the samples reflected in the Bid Proposal or failure to furnish samples within the required time period shall be cause for rejection of the Bid Proposal. All samples are subject to mutilation and will not be returned. Bidders shall bear the cost of any samples and shipping or delivery costs related thereto.

IB-21 NOTICES

All communications and notices between the County and Bidders regarding the Contract Documents shall be in writing and hand delivered or delivered via first class United States mail, postage prepaid. Notices to the Bidders shall be addressed to the name and address provided by the Bidders; notices to the Chief Procurement Officer shall be addressed to Room 1018, County Building, 118 North Clark Street, Chicago, Illinois 60602.

IB-22 COMPLIANCE WITH LAWS - PUBLIC CONTRACTS

This Contract is a competitively bid public contract of Cook County government subject to laws and ordinances governing public contracts. The Bidder shall at all times observe and comply with all laws, ordinances, regulations and codes of the Federal, State, County and other local government agencies which may in any manner effect the preparation of the Bid Proposal or the performance of the Contract. If the Bidder observes that any of the Contract Documents are at variance therewith, it shall promptly notify the Chief Procurement Officer in writing and necessary changes shall be effected by appropriate modification.

IB-23 COOPERATION WITH INSPECTOR GENERAL

Persons or businesses seeking County contracts are required to abide by all of the applicable provisions of the Office of the Independent Inspector General Ordinance (Section 2-281 et. seq. of the Cook County Code of Ordinances). Failure to cooperate as required may result in monetary and/or other penalties.

END OF SECTION

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BID CONTRACTS
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GENERAL CONDITIONS

GC-01 SUBCONTRACTING OR ASSIGNMENT OF CONTRACT OR CONTRACT FUNDS

Once awarded, this Contract shall not be subcontracted or any part thereof assigned without the express written approval of the County Chief Procurement Officer ("Chief Procurement Officer"). In no case, however, shall such approval relieve the Contractor from his obligations or change the terms of the Contract. The Contractor shall not transfer or assign any Contract funds or claims due or to become due without the advance written approval of the Chief Procurement Officer. The unauthorized subcontracting or assignment of the Contract, in whole or in part, or the unauthorized transfer or assignment of any Contract funds, either in whole or in part, or any interest therein, which shall be due or are to become due the Contractor shall have no effect on the County and are null and void.

The Contractor shall identify any and all contractors and subcontractors it intends to use in the performance of the Contract. All such persons shall be subject to the prior approval of the County.

The Contractor and its employees, contractors, subcontractors, agents and representatives are, for all purposed arising out of this Contract, independent contractors and are not employees of the County. It is expressly understood and agreed that the Contractor and its employees, contractors, subcontractors, agents and representatives shall in no event as a result of a contract be entitled to any benefit to which County employees are entitled, including, but not limited to, overtime, retirement benefits, worker's compensation benefits and injury leave or other leave benefits.

GC-02 INDEMNIFICATION

The Contractor covenants and agrees to indemnify and save harmless the County and its commissioners, officials, employees, agents and representatives, and their respective heirs, successors and assigns, from and against any and all costs, expenses, attorney's fees, losses, damages and liabilities incurred or suffered directly or indirectly from or attributable to any claims arising out of or incident to the performance or nonperformance of the Contract by the Contractor, or the acts or omissions of the officers, agents, employees, contractors, subcontractors, licensees or invitees of the Contractor. The Contractor expressly understands and agrees that any Performance Bond or insurance protection required of the Contractor, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify the County as hereinabove provided.

GC-03 INSPECTION AND RESPONSIBILITY

The County shall have a right to inspect any Contract Goods used in carrying out this Contract and shall be responsible for the quality and standards of all materials or completed work furnished under this Contract. Contract Goods or completed work not complying herewith may be rejected by the Chief Procurement Officer and/or the Director and shall be replaced and/or re-performed by the Contractor at no cost to the County. Any Contract Goods rejected shall be removed within a reasonable time from the premises of the County at the entire expense of the Contractor, after notice has been given by the County to the Contractor that such Contract Goods have been rejected.

GC-04 PAYMENT

All invoices submitted by the Contractor shall be in accordance with the cost provisions contained in the Contract Documents. No payments shall be made without such invoices having been submitted along with a County Voucher Form.

GC-05 PREPAID FEES

In the event this Contract is terminated by either party, for cause or otherwise, and the County has prepaid for any service or Contract Good to be provided pursuant to this Contract, Contractor shall refund to the County, on a prorated basis to the effective date of termination, all amounts prepaid for such service or Contract Good not actually provided as a result of the termination. The refund shall be made within fourteen (14) days of the effective date of termination.

GC-06 TAXES

Federal Excise Tax does not apply to materials purchased by the County by virtue of Exemption Certificate No. 36-75-0038K. Illinois Retailers' Occupation Tax, Use Tax and Municipal Retailers' Occupation Tax do not apply to materials or services purchased by the County by virtue of statute. The price or prices quoted herein shall include any and all other federal and/or state, direct and/or indirect taxes which apply to this Contract. The County's State of Illinois Sales Tax Exemption Identification No. is E-9998-2013-05.

GC-07 PRICE REDUCTION

If at any time after the contract award, Contractor makes a general price reduction in the price of any goods covered by the Contract, the equivalent price reduction based on similar quantities and/or considerations shall apply to this Contract for the duration of the Contract period. Such price reductions shall be effective at the same time and in the same manner as the reduction in the price to customers generally.

GC-08 CONTRACTOR CREDITS

To the extent the Contractor gives credits toward future purchases of goods or services, financial incentives, discounts, value points or other benefits based on the purchase of the materials or services provided for under this Contract, such credits belong to the County and not any specific using department. Contractor shall report any such credits to the Chief Procurement Officer.

GC-09 DISPUTES

Any dispute arising under the Contract between the County and Contractor shall be decided by the Chief Procurement Officer. The complaining party shall submit a written statement detailing the dispute and specifying the specific relevant Contract provision(s) to the Chief Procurement Officer. Upon request of the Chief Procurement Officer, the party complained against shall respond to the complaint in writing within five days of such request. The Chief Procurement Officer will reduce his decision to writing and mail or otherwise furnish a copy thereof to the Contractor and Director. Dispute resolution as provided herein shall be a condition precedent to any other action at law or in equity. Notwithstanding a dispute, Contractor shall continue to discharge all its obligations, duties and responsibilities set forth in the Contract during any dispute resolution proceeding unless otherwise agreed to by the County in writing.

GC-10 MODIFICATIONS AND AMENDMENTS

The parties may during the term of the Contract make modifications and amendments to the Contract but only as provided in this section. Such modifications and amendments shall only be made by mutual agreement in writing. In the case of Contracts not approved by the Board, the Chief Procurement Officer may amend a contract provided that any such amendment does not extend the Contract by more than one (1) year, and further provided that the total cost of all such amendments does not increase the total amount of the Contract beyond $150,000. Such action may only be made with the advance written approval of the Chief Procurement Officer. If the amendment extends the Contract beyond one (1) year or increases the total award amount beyond $150,000, then Board approval will be required.

In the case of Contracts approved by the Board, the total cost of all such amendments shall not increase the Contract by more than 10% of the original contract award and the term may only be extended for up to one (1) year. Such action may only be made with the advance written approval of the Chief Procurement Officer.

In the case of Contracts approved by the Board, modifications and amendments which individually or cumulatively result in additional costs of greater than 10% of the original awarded amount or which extend the term of the Contract by more than one (1) year shall be deemed as authorized with the advance approval of the Cook County Board of Commissioners.

No County department or employee thereof has authority to make any modifications or amendments to this Contract. Any modifications or amendments to this Contract made without the express written approval of the Chief Procurement Officer is void and unenforceable.

GC-11 DEFAULT

Contractor shall be in default hereunder in the event of a material breach by Contractor of any term or condition of this Contract where Contractor has failed to cure such breach within ten (10) days after written notice of breach is given to Contractor by the County, setting forth the nature of such breach.

A material breach of the contract by the Contractor includes but is not limited to the following:

1. Failure to begin performance under this Contract within the specified time;

2. Failure to perform under this Contract with sufficient personnel, equipment, or materials to ensure completion of said performance within the specified time or failure to assign qualified personnel to ensure completion within the specified time;

3. Performance of this contract in an unsatisfactory manner;

4. Refusal to perform services deemed to be defective or unsuitable;

5. Discontinuance of performance of Contractor's obligations under the Contract or the impairment or the reasonable progress of performance;

6. Becoming insolvent, being declared bankrupt or committing any act of bankruptcy or insolvency;

7. Any assignment of this contract for the benefit of creditors;

8. Any cause whatsoever which impairs performance in an acceptable manner; or

9. Any other material breach of any term or condition of this Contract.

County shall be in default hereunder if any material breach of the Contract by the County occurs which is not cured by the County within forty-five (45) days after written notice of breach has been given by Contractor to the County, setting forth the nature of such breach.

GC-12 COUNTY'S REMEDIES

If the Contractor fails to remedy a material breach during the ten (10) day cure period pursuant to General Condition GC-11, Default, the County shall have the right to terminate this Contract provided, however, that the County shall give Contractor prior written notice of its intent to terminate. Following notice of breach to Contractor, the County reserves the right to withhold payments owed to Contractor until such time as Contractor has cured the breach which is the subject matter of the notice. In addition, the County shall have the right to pursue all remedies in law or equity.

GC-13 CONTRACTOR'S REMEDIES

If the County has been notified of breach and fails to remedy the breach during the forty-five (45) day cure period pursuant to General Condition GC-11, Default, the Contractor shall have the right to terminate this Contract providing, however, that Contractor shall give the County thirty (30) days prior written notice of termination.

Contractor shall have the right to pursue all remedies available in law or equity. In all cases the Contractor's damages shall be those provable damages not to exceed the value of the Contract as awarded by the Cook County Board of Commissioners. Contractor shall not disrupt the operation or repossess any component thereof.

GC-14 DELAYS

Contractor agrees that no charges or claims for damages shall be made by Contractor for any delays or hindrances from any cause whatsoever during the progress of any portion of this Contract.

GC-15 WAIVER OF SUBROGATION AND INSURANCE REQUIREMENTS

SUBROGATION AND WAIVER

1) The Contractor shall require all policies of insurance that are in any way related to the work and are secured and maintained by Contractor and all tiers of subcontractors to include clauses providing that each underwriter shall waive all of its rights of recovery, under subrogation or otherwise, against Cook County, Board of Commissioners, Engineer and employees of the County.

   The Contractor shall waive all rights of recovery against Cook County, Board of Commissioners, Engineer, employees of the County and other Contractors and subcontractors which Contractor may have or acquired because of deductible clauses in or inadequacy of limits of any policies of insurance that are in any way related to the work and that are secured and maintained by Contractor. The Contractor shall be solely responsible for providing all services and products specified in the section "Protection of Persons and Property."

   The Contractor shall require all tiers of subcontractors to waive the rights of recovery against Cook County, Engineer and all tiers of subcontractors.

INSURANCE REQUIREMENTS OF THE CONTRACTOR

2) Prior to the commencement of the work, the Contractor, at its cost, shall secure and maintain at all times during the performance of this agreement the insurance specified below, with Cook County, Contractor and subcontractors of all tiers as insured parties and with limits not less than those specified below for each coverage.

   Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from his/her operations under this contract. The Contractor shall advise all insurance companies to familiarize themselves with the conditions and provisions of this contract dealing with waivers of subrogation, insurance and indemnification. Failure of the Contractor to so notify their insurance companies shall in no way relieve them from their obligations under this contract. The Commercial General Liability and Umbrella Excess Insurance purchased and maintained by the Contractor shall be on a primary and non-contributory basis and shall not be excess to any insurance or self-insurance maintained by Cook County.

   The Cook County Department of Risk Management maintains the right to modify, delete, alter or change these requirements.

   The Contractor's Commercial General Liability insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

   The Contractor shall at all times during the period in which this agreement is in force and effect provide and maintain insurance of the type and in the limits as set forth below.

   a. Workers Compensation Insurance. In accordance with the Laws of the State of Illinois or any other applicable jurisdiction.

   The Workers Compensation policy shall also include the following provisions:

   Waiver of Kotecki endorsement affording coverage for claims arising out of Contractor's waiver of its Kotecki rights in this agreement

   Occupational disease

   Voluntary Compensation

i) Employers' Liability coverage with a limit of:

$1,000,000 each Accident
$1,000,000 each Employee
$1,000,000 Policy Limit for Disease

ii) United States Longshoremen's and Harbor workers' Act coverage, if applicable

iii) Broad form all states coverage

b. Commercial General Liability Insurance. Occurrence form Commercial General Liability policy to cover bodily injury and property damage.

The General Liability coverage shall have a combined bodily injury and property damage limit of $1,000,000 per occurrence and $2,000,000 aggregate with the following provisions included:

i) All Premises and Operations.

ii) Explosion, collapse and underground damage.

iii) Contractor's Protective coverage for independent contractors or subcontractors employed by Contractor.

iv) Contractual liability for the obligations assumed in the Indemnification and Hold Harmless agreement, the Waiver of Subrogation section and the Insurance section found herein.

v) Property Damage Liability.

vi) Cross Liability

vii) Incidental Medical Malpractice coverage.

viii) Products and Completed Operations coverage (for a minimum of 3 years following project completion).

ix) Personal Injury Liability

x) General Aggregate Limit shall be specifically endorsed to provide that the General Aggregate Limit applies separately to this project

xi) Products/Completed Operations limit of $2,000,000 each occurrence and in the aggregate.

xii) Railroad Protective Liability: Where such exposure exists, the Contractor will provide coverage in the name of each railroad company having jurisdiction over right of way across which work under the contract is to be performed (see "Additional Assured" hereinafter). Limits of at least $2,000,000 each occurrence and $6,000,000 aggregate or as required by the railroad.

c. Commercial Automobile Liability Insurance. Covering all owned, non-owned and hired automobiles, trucks and trailers of the respective parties required to provide and maintain this insurance. Such insurance shall provide coverage limits not less than, as respects any Contractor, and as respects all tiers of subcontractors, the following:

Liability All Autos: Bodily Injury & Property Damage $1,000,000 per Occurrence

d) Contractor's Pollution Liability

Contractor will maintain pollution liability insurance with limits of liability of $1,000,000 each claim and aggregate with a deductible no greater than $250,000 each claim.

The policy will provide coverage for sums the Contractor becomes legally obligated to pay as loss as a result of claims for bodily injury, property damage or clean-up costs caused by a pollution incident. Pollution incidents will include the discharge, dispersal, release or escape of any solid, liquid, gaseous or thermal irritant or contaminant, including but not limited to smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, medical waste, waste materials, lead, asbestos, silica, hydrocarbons and microbial matter. Microbial matter includes fungi, bacterial or viral matter which reproduces through the release of spores or the splitting of cells or other means, including but not limited to mold, mildew and viruses, whether or not such microbial matter is living.

Contractor waives and will require its contractor's pollution liability insurer to waive their rights of subrogation against Cook County and its agents for claims insured by the contractor's pollution liability insurance.

If the policy is a 'claims made' form or if any coverage under this policy is written as 'claims made', coverage will be maintained for four years after project completion.

e) Umbrella Excess Liability Insurance: In addition to the coverage specified above, the Contractor and its subcontractors shall provide the following excess liability insurance:

i) $10,000,000 each occurrence for all liability.

ii) $10,000,000 in the aggregate per policy year separately with respect to completed operations and personal injury.

iii) The policy shall be endorsed to provide that the limit applies separately to this project.

f) Additional Insured.

i) The County of Cook, Illinois

ii) Elected Officials of Cook County

iii) Employees of Cook County

iv) Others as may be specified in the "Special Conditions"

The additional insured shall be listed on the Commercial General Liability, and Umbrella/Excess Liability policies.

It is also understood that relative to the Commercial General Liability, and Umbrella/Excess liability policies, the County of Cook shall have the rights of an Additional Insured as provided by ISO endorsement CG 2037 07 04, CG 20 10 07 04 or CG 20 26 07 04. No other form will be accepted without prior approval of Cook County Risk Management. This requirement will remain in force throughout the three (3) year term of the completed operations extension of coverage.

All liability policies shall entirely delete ISO endorsements CG21 39 10 93 or similar endorsement or policy provision which limit contractual liability.

All policies shall contain a 60 day Notice of Cancellation/Non-Renewal to Cook County.

g. Qualification of Insurers. All insurance carriers providing the coverage required shall be licensed or approved by the Department of Insurance, State of Illinois, and shall have a financial rating no lower than VII and a policy holder's service rating no lower than (A-) as listed in A.M. Best's Key Rating Guide, current edition or interim report. Companies with ratings lower than (A-) or VII will be acceptable only upon written consent of Cook County Risk Management.

h. Damage Claims - Acknowledgment and Reports. The Contractor shall furnish to Cook County an acknowledgment receipt from the insurance Carrier for each damage claim against the project. The receipt shall include the Insurance Carrier's assigned claim number.

Upon request, the Contractor or his Insurance Carrier shall also furnish to Cook County a status report on all damage claims. This report shall include inspections made, the disposition of claims, and what action has been taken towards settlement of each claim.

CONTRACTOR OBLIGATIONS

1) Contractor and all subcontractors shall not violate or knowingly permit to be violated any condition of the policies of insurance provided by the terms of this agreement and shall at all times satisfy the requirements of the insurance companies issuing them.

2) All requirements imposed by the policies referred to above and to be performed by Contractor shall likewise be imposed upon, assumed and performed by each of the subcontractors. Contractor and each subcontractor shall execute with their subcontractors a written agreement which shall include all such requirements. Any "hold harmless" and "indemnity" clause must benefit and not be detrimental in any way to the County, its other Contractors, the Engineer and others so specifically identified in this agreement.

3) The Contractor and subcontractors shall secure, pay for and maintain whatever Fire or Extended Coverage Insurance the Contractor and subcontractors may deem necessary to protect the Contractor and subcontractors against loss of owned or rented capital equipment and tools, including any tools owned by mechanics, and any tools, equipment, scaffoldings, staging, towers, and forms owned or rented by the Contractor and subcontractors. The requirements to secure and maintain such insurance is solely for the benefit of the Contractor and subcontractors. Failure of the Contractor and subcontractors to secure such insurance or to maintain adequate levels of coverage shall not obligate Cook County for any loss of owned or rented equipment. If the Contractor or any subcontractors secures such insurance, the insurance policy shall include a waiver of subrogation clause as follows: "It is agreed that in no event shall this insurance company have any right to recovery against Cook County and Engineer."

INSURANCE NOTICES, COSTS AND LOSSES

Prior to the date on which Contractor or any subcontractor commences performance of its part of the work, Contractor shall furnish to Cook County Department of Transportation and Highways certificates of insurance and copies of the additional insured endorsement(s) maintained by the Contractor and each such subcontractor in connection with the performance of the work. As and when Cook County may direct, copies of actual insurance policies or renewals or replacements shall be submitted to Cook County. In no event shall any failure of the County to receive Certificates of Insurance required or to demand receipt of such certificates of insurance be construed as a waiver of Contractor's obligations to obtain insurance pursuant to these insurance requirements. When insurance expires, Contractor shall supply replacement certificates that clearly evidence the continuation coverage in the same manner, limits and coverage.

PROTECTION OF PERSONS AND PROPERTY

The Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during the performance of the work. The requirement will apply continuously and not be limited to normal working hours.

The Contractor shall furnish such watchmen, guards, fences, warning signs, lights and walkways, and shall take all other precautions as shall be necessary, to prevent damage to persons or property. All structures and improvements in the vicinity of the work shall be protected by the Contractor, and if such property is damaged, injured or destroyed by the Contractor, his employees, subcontractors, or agents, it shall be restored to a condition as good as when he entered upon the work.

The safety provisions of applicable laws, including but not limited to building and construction codes, shall be observed. The Contractor shall be responsible for all safety provisions.

The duty of the Engineer to conduct construction inspections of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on or near the construction site or sites.

GC-16 PATENTS, COPYRIGHTS AND LICENSES

Contractor agrees to hold harmless and indemnify the County, its officers, agents, employees and affiliates from and defend, at its own expense (including reasonable attorneys', accountants' and consultants' fees), any suit or proceeding brought against County based upon a claim that the ownership and/or use of equipment, hardware and software or any part thereof utilized in performing Contractor's services constitutes an infringement of any patent, copyright or license or any other intellectual property right.

In the event the use of any equipment, hardware or software or any part thereof is enjoined, Contractor with all reasonable speed and due diligence shall provide or otherwise secure for County, at the Contractor's election, one of the following: the right to continue use of the equipment, hardware or software; an equivalent system having the Specifications as provided in this Contract; or to modify the system or its component parts so that it becomes non-infringing while performing in a substantially similar manner to the original system, meeting the Specifications of this Contract.

GC-17 COMPLIANCE WITH LAWS

The Contractor shall observe and comply with the laws, ordinances, regulations and codes of the Federal, State, County and other local government agencies which may in any manner affect the performance of the Contract, including but not limited to those County Ordinances set forth in the Certifications attached hereto and incorporated herein. Assurance of compliance with this requirement by the Contractor's employees, agents or subcontractors shall be the responsibility of the Contractor.

The Contractor shall secure and pay for all federal, state and local licenses, permits and fees required hereunder.

GC-18 DELIVERY

All Contract Goods shipped to the County shall be shipped F.O.B., DESTINATION, FREIGHT PREPAID. Arrangements shall be made in advance by the Contractor in order that the County may arrange for receipt of the materials.

Truck deliveries will be accepted before 3:00 P.M. on weekdays only. No deliveries will be accepted on Saturdays, Sundays or County Holidays. The County is not responsible for delivery delays due to waiting times for loading and unloading at dock locations.

The quantity of Contract Goods delivered by truck will be ascertained from a weight certificate issued by a duly licensed Public Weight-Master. In the case of delivery by rail, weight will be ascertained from bill of lading from originating line, but the County reserves the right to re-weigh at the nearest available railroad scale.

The County reserves the right to add new delivery locations or delete previously listed delivery locations as required during the Contract period. The only restriction regarding the County's right to add new delivery locations shall be that any new or additional location shall be within the geographical boundaries of the County of Cook.

GC-19 MINORITY AND WOMEN BUSINESS ENTERPRISES
COOK COUNTY ORDINANCE CHAPTER 34, DIVISION 6, SECTION 34-275 to SECTION 34-303

I. POLICY AND GOALS

A. It is the policy of the County of Cook to prevent discrimination in the award of or participation in County contracts and to eliminate arbitrary barriers for participation, as both prime and sub-contractors, in such contracts by local businesses certified as Minority Business Enterprises (MBE) and Women-owned Business Enterprises (WBE). In furtherance of this policy, the Cook County Board of Commissioners has adopted a Minority- and Women-owned Business Enterprise Ordinance (the "Ordinance") which establishes a goal of awarding not less than twenty-five percent (25%) of the annual total dollar amount of contracts to certified MBEs and ten percent (10%) of the annual dollar value of all such contracts to certified WBEs.

B. **The County may set contract-specific goals for each contract, based on the commodities or services specified in this bid document. The MBE/WBE percentages required for this contract are stated in the Special Conditions.** A Bid or Quotation shall be rejected if the County determines that a Bid or Quotation fails to comply with this General Condition, including but not limited to, commitments to achieve for this contract, the MBE/ WBE goals of the contract amount or to include a Petition for Reduction/Waiver documenting why the goals are not attainable despite the contractor's Good Faith Efforts. A Bid or Quotation may be rejected and a new Bid or Quotation may be solicited if the public interest is served thereby. Unless otherwise specified in the Bid or Quotation Documents, for purposes of this GC-19, the contract amount is the amount that has been entered on the Proposal page of the Bid or Quotation Documents.

C. Except to the extent that a Bid or Quotation includes a Reduction/Waiver request, the contract MBE and WBE participation goals may be achieved by the Bid or Quotation entities' status as a MBE or WBE; by entering into a joint venture with one or more MBEs and/or WBEs; by subcontracting a portion of the work to one or more MBEs and WBEs; by establishing and carrying out a mentor/protégé agreement; by the Indirect Participation of one or more MBEs and WBEs used by the entity submitting a Bid or Quotation in other aspects of its business; or by any combination of the foregoing so long as the Utilization Plan evidences a commitment to the MBE and WBE contract goals set forth in (B) above.

D. The same Business Enterprise, whether as a contractor, subcontractor or supplier, cannot be utilized as both a MBE and a WBE on the same contract.

E. To the extent that the Ordinance does not apply to this Bid or Quotation, unless specifically waived in the Bid or Quotation Documents, this GC-19 and the wording of the Ordinance shall apply. If there is a conflict between this GC-19 and the Ordinance or the wording of the Ordinance, the Ordinance or its wording controls.

F. A Contractor's failure to carry out its commitments in the course of the Contract's performance shall constitute a material breach of the Contract and if such breach is not appropriately cured, may result in the termination of the Contract or such remedy authorized by the Ordinance as the County deems appropriate.

GC-19 MINORITY AND WOMEN BUSINESS ENTERPRISES
COOK COUNTY ORDINANCE CHAPTER 34, DIVISION 6, SECTION 34-275 to SECTION 34-303

II. REQUIRED BID OR QUOTATION SUBMITTALS

To be considered responsive, a Bid or Quotation shall meet the MBE and WBE goals by submitting a Utilization Plan with the Bid or Quotation, which shall be (1) supported by Letters of Intent from the MBEs and WBEs together with the MBEs/WBEs Letters of Certification, and/or (2) include a written Petition for Reduction/Waiver with the Bid or Quotation supported by documentation of Good Faith Efforts to meet the goals. Failure to submit the documents set forth in (A) and (B) of this Section II in accordance with these guidelines will cause the Bid or Quotation to be considered non-responsive and shall be cause to reject the Bid or Quotation.

A. MBE/WBE Utilization Plan

Each Bid or Quotation shall include with the Bid or Quotation a complete Utilization Plan. The Utilization Plan shall list the names, mail and email addresses, telephone number and contact persons of businesses intended to be used as MBEs and WBEs on the Contract. If the entity submitting a Bid or Quotation, or any of its subcontractors, suppliers or consultants, are certified MBEs or WBEs they shall be identified as an MBE or WBE within the Utilization Plan.

1. Letter(s) of Intent

Except as set forth below, a Bid or Quotation shall include with its Utilization Plan, Letter(s) of Intent executed by each MBE and WBE included in the Utilization Plan and by the entity submitting the Bid or Quotation, which sets forth that each MBE and WBE intends to perform as a subcontractor, supplier, joint venture partner and/or consultant on the contract. The Letters of Intent must accurately detail the work to be performed by the MBE or WBE firm and the agreed rates and/or prices to be paid.

If the Bid or Quotation does not include all Letter(s) of Intent with its Utilization Plan, such Letter(s) of Intent may be submitted to the Office of Contract Compliance within three (3) business days after the date of the Bid or Quotation Opening. Failure to submit all Letter(s) of Intent as required shall result in the Contract Compliance Administrator's determination that a Bid or Quotation is not responsive and shall be cause to reject the Bid or Quotation.

All commitments made by a Bid or Quotation in its Utilization Plan must conform to those included in the submitted Letter(s) of Intent. The Contract Compliance Administrator reserves the right to request supplemental information regarding the Letter(s) of Intent submitted with a Bid or Quotation and such information shall be furnished. (Reference pages EDS-2 for a format sample of a Letter of Intent)

2. Letter(s) of Certification

Only a Letter of Certification from one of the following entities shall be accepted as certification of MBE/WBE status:

County of Cook
Small Business Administration 8A Program
Illinois Unified Certification Program
or any other governmental body or agency approved by the Contract Compliance Administrator as applying certification standards substantially similar to those applied by the County of Cook may also be accepted.

The Contract Compliance Administrator retains the right to reject the certification of any MBE or WBE on the ground that it does not meet the County's definition of a MBE or WBE.

GC-19 MINORITY AND WOMEN BUSINESS ENTERPRISES
COOK COUNTY ORDINANCE CHAPTER 34, DIVISION 6, SECTION 34-275 to SECTION 34-303

3. Joint Venture Affidavit

In the event a Bid or Quotation achieves MBE and/or WBE participation by entering into a Joint Venture, the Bid or Quotation shall include the required Joint Venture Affidavit which is available in the Office of Contract Compliance. Such Joint Venture Affidavit shall be submitted with the Bid or Quotation along with Letter(s) of Certification.

B. Reduction/Waiver Petition

In the event a Bid or Quotation is unable to meet the applicable contract MBE and WBE participation goals, the Bid or Quotation must include a Petition for Reduction/Waiver and submit the Petition with its Bid or Quotation. The Petition for Reduction/Waiver shall be supported with evidence and sufficient documentation to demonstrate the Bid's or Quotation's Good Faith Efforts in attempting to achieve the applicable MBE and WBE goals. If a Bid or Quotation does not include all documentation in support of the Petition with its Bid or Quotation, such documentation must be submitted to the Office of Contract Compliance within three (3) business days after the date of the Bid or Quotation opening.

III. REDUCTION/WAIVER OF MBE/MBE GOALS

A. Granting a Reduction/Waiver Request.

1. The determination of the adequacy of the Good Faith Efforts to utilize MBEs and WBEs in a Bid or Quotation will be evaluated on the basis of the actions in attempting to achieve MBE and WBE participation goals set forth in the Bid or Quotation. Examples of actions constituting Good Faith Efforts for a Bid or Quotation are set forth within the Ordinance and in the "Petition for Reduction/Waiver of MBE/WBE Participation Goals" contained in the Bid or Quotation Documents.

2. The Contract Compliance Administrator may grant the Petition for Reduction/Waiver based upon the following criteria: (a) sufficient qualified MBEs and WBEs capable of providing the goods or services required by the contract are unavailable despite the good faith efforts of the contractor; (b) the specifications and the reasonable and necessary requirements for performing the contract make it impossible or economically infeasible to divide the contract into sufficiently small tasks or quantities to enable the contractor to utilize MBEs and WBEs in accordance with the applicable goals; (c) the price(s) quoted by any potential MBE or WBE source of goods or services is more that 10% above competitive levels; and (d) any other factor determined to be relevant by the Contract Compliance Administrator.

B. Denying a Reduction/Waiver Request.

1. If the Contract Compliance Administrator determines that a Bid or Quotation has not demonstrated adequate Good Faith Efforts to meet the applicable contract MBE and WBE goals, the Contract Compliance Administrator may deny a Petition for Reduction/Waiver and declare the Bid or Quotation non-responsive and recommend rejection of the Bid or Quotation.

2. Failure to undertake and/or to document adequate Good Faith Efforts shall be cause to deny a Petition for Reduction/Waiver. Determination of the adequacy of a Bid's or Quotation's Good Faith Effort will be evaluated on the basis of the Bid's or Quotation's actions as of the date of the Bid or Quotation opening.

GC-19 MINORITY AND WOMEN BUSINESS ENTERPRISES
COOK COUNTY ORDINANCE CHAPTER 34, DIVISION 6, SECTION 34-275 to SECTION 34-303

IV. CHANGES IN CONTRACTOR'S UTILIZATION PLAN

A. Contractor, during its performance of the Contract, may not change the MBE or WBE commitments specified in its Utilization Plan, including but not limited to, terminating a MBE or WBE contract, reducing the scope of the work to be performed by a MBE/WBE, or decreasing the price to a MBE/WBE, except as otherwise provided by the Ordinance.

B. Where an enterprise under the Contact was previously considered to be a MBE or WBE but is later found not to be, or work is found not to be creditable toward the MBE or WBE goals as stated in the Utilization Plan, the Contractor shall seek to discharge the disqualified enterprise, upon proper written notification to the Contract Compliance Administrator, and make every effort to identify and engage a qualified MBE or WBE as its replacement. Failure to obtain a MBE or WBE replacement within 30 working days of the Contract Compliance Administrator's written approval of the removal of a MBE or WBE may result in the termination of the contract or the imposition of such remedy authorized by the Ordinance, unless a written Petition for Reduction/Waiver is granted to Contractor allowing Contractor to award the work to a non-MBE or WBE.

V. NON-COMPLIANCE

If the County determines that the Contractor has failed to comply with its contractual commitments or any portion of the Ordinance or this GC-19, the Contract Compliance Administrator will notify the Contractor of such noncompliance and may take any and all appropriate actions as set forth within the Ordinance.

VI. REPORTING/RECORD-KEEPING REQUIREMENTS

The Contractor is required to comply with the reporting and record-keeping requirements as set forth in the Ordinance and as established by the Contract Compliance Administrator. Upon award of a Contract, Contractor is responsible for acquiring all necessary County reporting and record-keeping forms which will be made available in the Office of Contract Compliance.

VII. EQUAL EMPLOYMENT OPPORTUNITY

Compliance with MBE and WBE requirements will not diminish or supplant Equal Employment Opportunity and Civil Rights provisions as required by law as they relate to contractor and subcontractor obligations.

GC-20 MATERIAL DATA SAFETY SHEET

Where required under the Illinois "Toxic Substance Disclosure To Employees Act", Illinois Compiled Statutes, 1994, 820 ILCS 255/1, Contractor shall submit with each delivery of Contract Goods, a Material Safety Data Sheet.

GC-21 CONDUCT OF THE CONTRACTOR

The Contractor agrees to inform the County on a timely basis of all of the Contractor's interests, if any, which are or which the Contractor reasonably believes may be incompatible with any interest of the County. The Contractor shall take notice of and comply with the Cook County Lobbyist Registration Ordinance (No. 93-0-22, 6-22-93). The Contractor shall not use for personal gain or make other improper use of privileged information which is acquired in connection with the Contract.

GC-22 ACCIDENT REPORTS

The Chief Procurement Officer and Director shall be given written notification within twenty-four (24) hours of any occurrence, on the site or otherwise, which pertains in any way to this Contract and involves the Contractor's personnel, or those of any of his subcontractors or others whether said occurrence be in the nature of bodily injury to employees or third parties or property damage.

The report shall include the name of person(s) injured, name of his employer, date, time and location of occurrence, extent of injury and/or damage, name(s) of eyewitnesses, and who treated the person(s) for injuries sustained, and such other information as may be relevant. The Contractor shall notify the local police any occurrence requiring an official police record. The accident report should indicate whether the police were notified and, if so, the number of the police report.

GC-23 USE OF PREMISES

Contractor shall confer with the Director to ascertain full knowledge of all rules and regulations of the County facilities relative to this Contract and shall comply therewith. The Contractor shall confine the operations of its employees to the limits indicated by laws, ordinances, permits and/or direction of the Director and shall not encumber the premises with materials or debris. The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

The County reserves the right to prohibit any person from entering any County facility for any reason. All subcontractors, agents and employees of the Contractor shall be accountable to the Director while on any County property and shall abide by all security regulations imposed by the County.

GC-24 GENERAL NOTICE

All notices required pursuant to this Contract shall be in writing and addressed to the parties at their respective addresses set forth below. All such notices shall be deemed duly given if hand delivered or if deposited in the United States mail, registered or certified, return receipt requested. Notice as provided herein does not waive service of summons or process.

TO THE COUNTY:

Chief Procurement Officer
County of Cook
Room 1018, County Building
118 North Clark Street
Chicago, Illinois 60602
(Reference County Contract Number)

TO THE CONTRACTOR:

At address provided in its bid document or as otherwise indicated in writing to County.

GC-25 TERMINATION FOR CONVENIENCE

The County may terminate this Contract, or any portion, at any time by notice in writing from the County to the Contractor.

GC-26 GUARANTEES AND WARRANTIES

All guarantees and warranties required shall be furnished by the Contractor and shall be delivered to the Director before final voucher on the Contract is issued. The Contractor agrees that the Contract Goods or services to be furnished shall be covered by the most favorable commercial warranties the Contractor gives to any customer for the same or substantially similar Contract Goods or services and that the rights and remedies so provided are in addition to and do not limit any rights afforded to County.

GC-27 STANDARD OF CONTRACT GOODS

Only new, originally manufactured Contract Goods will be accepted by the County. The County will not accept any Contract Goods that have been refurbished, rebuilt, restored or renovated in any manner. In addition, experimental materials will not be acceptable. Contract Goods not produced by regular production methods and/or which have not been offered for sale to the public through accepted industry trade channels for a reasonable period of time prior to the offering of the proposal, will be considered experimental.

GC-28 CONFIDENTIALITY AND OWNERSHIP OF DOCUMENTS

Contractor acknowledges and agrees that information regarding this Contract is confidential and shall not be disclosed, directly, indirectly or by implication, or be used by Contractor in any way, whether during the term of this Contract or at any time thereafter, except solely as required in the course of Contractor's performance of Services hereunder. Contractor shall comply with the applicable privacy laws and regulations affecting Owner and will not disclose any of Owner's records, materials, or other data to any third party. Contractor shall not have the right to compile and distribute statistical analyses and reports utilizing data derived from information or data obtained from Owner without the prior written approval of Owner. In the event such approval is given, any such reports published and distributed by Contractor shall be furnished to Owner without charge.

All documents, data, studies, reports, work product or product created as a result of the performance of Service(s) shall be the property of the County of Cook. It shall be a breach of this Contract for the Contractor to reproduce or use, any documents, data, studies, report, work product or product obtained from the County of Cook or created hereby for its own purposes or to be copied and used by any third party. During the performance of the Services herein provided for, the Contractor shall be responsible of any loss or damage to the documents herein enumerated while they are in his possession, and any such document lost or damaged shall be restored at the expense of the Contractor. Full access to the work during the preparation of the plans shall be available to the County and other public agencies interested in this work.

GC-29 QUANTITIES

The quantities of materials required for the performance of the Contract are estimates for the purpose of determining an approximate total Contract amount and may not be the actual quantities required during the term of the Contract. The County reserves the right to increase or decrease the quantities at the Contract price, to correspond to the actual needs of the County. The County will be obligated to order and pay for only such quantities as are from time to time ordered, delivered, and accepted on purchase orders issued by the Chief Procurement Officer.

GC-30 AUDIT; EXAMINATION OF RECORDS

The Contractor agrees that the Cook County Auditor or any of its duly authorized representatives shall, until expiration of three (3) years after the final payment under the Contract, have access and the right to examine any books, documents, papers, canceled checks, bank statements, purveyor's and other invoices, and records of the Contractor related to the Contract, or to Contractor's compliance with any term, condition or provision thereof. The Contractor shall be responsible for establishing and maintaining records sufficient to document the costs associated with performance under the terms of this Contract.

The Contractor further agrees that it shall include in all of its subcontracts hereunder a provision to the effect that the subcontractor agrees that the Cook County Auditor or any of its duly authorized representatives shall, until expiration of three (3) years after final payment under the subcontract, have access and the right to examine any books, documents, papers, canceled checks, bank statements, purveyor's and other invoices and records of such subcontractor involving transactions relating to the subcontract, or to such subcontractor's compliance with any term, condition or provision thereunder or under the Contract.

In the event the Contractor receives payment under the Contract, reimbursement for which is later disallowed by the County, the Contractor shall promptly refund the disallowed amount to the County on request, or at the County's option, the County may credit the amount disallowed from the next payment due or to become due to the Contractor under any contract with the County.

GC-31 GOVERNING LAW

This Contract shall be governed by and construed under the laws of the State of Illinois. The Contractor irrevocably agrees that, subject to the County's sole and absolute election, any action or proceeding in any way, manner or respect arising out of the Contract, or arising from any dispute or controversy arising in connection with or related to the Contract, shall be litigated only in courts within the City of Chicago, County of Cook, State of Illinois, and the Contractor consents and submits to the jurisdiction thereof. In accordance with these provisions, Contractor waives any right it may have to transfer or change the venue of any litigation brought against it by the County pursuant to this Contract.

GC-32 COOPERATION WITH INSPECTOR GENERAL

Contractors, subcontractors, licensees, grantees or persons or businesses who have a County contract, grant, license, or certification of eligibility for County contracts shall abide by all of the applicable provisions of the Office of the Independent Inspector General Ordinance (Section 2-281 et. seq. of the Cook County Code of Ordinances). Failure to cooperate as required may result in monetary and/or other penalties.

GC-33 WAIVER

No term or provision of this Contract shall be deemed waived and no breach consented to unless such waiver or consent shall be in writing and signed by the party claimed to have waived or consented. The waiver of any such provision shall be strictly limited to the identified provision.

GC-34 ENTIRE CONTRACT

It is expressly agreed that the provisions set forth in this Contract constitute all the understandings and agreements between the parties. Any prior agreements, promises, negotiations, or representations not expressly set forth in this Contract are of no force and effect.

GC-35 FORCE MAJEURE

Neither Contractor nor County shall be liable for failing to fulfill any obligation under this Contract if such failure is caused by an event beyond such party's reasonable control and which is not caused by such party's fault or negligence. Such events shall be limited to acts of God, acts of war, fires, lightning, floods, epidemics, or riots.

GC-36 GOVERNMENTAL JOINT PURCHASING AGREEMENT

Pursuant to Section 4 of the Illinois Governmental Joint Purchasing Act (30 ILCS 525) and the Joint Purchase Agreement approved by the Cook County Board of Commissioners (April 9, 1965), other units of government may purchase goods or services under this contract.

In the event that other agencies participate in a joint procurement, the County reseves the right to renegotiate the price to accommodate the larger volume.

GC-37 COOPERATIVE PURCHASING

As permitted by the County of Cook, other government entities may wish to also participate under the same terms and conditions contained in this contract (piggyback). Each entity wishing to piggyback must have prior authorization from the County of Cook and vendor. If such participation is authorized, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. The County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by these entities. Each entity reserves the right to determine their participation in this contract.

GC-38 FEDERAL CLAUSES

1. Interest of Members of or Delegates to the United States Congress

In accordance with 41 U.S.C. § 22, the Contractor agrees that it will not admit any member of or delegate to the United States Congress to any share or part of the Contract or any benefit derived therefrom.

2. False or Fraudulent Statements and Claims

(a) The Contractor recognizes that the requirements of the Program Fraud Civil Remedies Act of 1986, as amended, 49 U.S.C. §§ 3081 et seq and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to the Contract. Accordingly, by signing the Contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, or it may make pertaining to the Contract, including without limitation any invoice for its services. In addition to other penalties that may be applicable, the Contractor also acknowledges that if it makes a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986, as amended, on the Contractor to the extent the Federal Government deems appropriate.

(b) The Contractor also acknowledges that if it makes a false, fictitious, or fraudulent claim, statement, submission, or certification to the County or Federal Government in connection with an urbanized area formula project financed with Federal assistance authorized by 49 U.S.C. § 5307, the Government reserves the right to impose on the Contractor the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1), to the extent the Federal Government deems appropriate.

3. Federal Interest in Patents

(a) General. If any invention, improvement, or discovery of the Contractor is conceived or first actually reduced to practice in the course of or under the Contract, and that invention, improvement, or discovery is patentable under the laws of the Unites States of America or any foreign country, the Contractor agrees to notify County immediately and provide a detailed report.

(b) Federal Rights. Unless the Federal Government later makes a contrary determination in writing, the rights and responsibilities of the County, Contractor, and the Federal Government pertaining to that invention, improvement, or discovery will be determined in accordance with applicable Federal laws and regulations, including any waiver thereof. Unless the Federal Government later makes a contrary determination in writing, the Contractor agrees that, irrespective of its status or the status of any subcontractor at any tier (e.g., a large business, small business, non-profit organization, institution of higher education, individual), the Contractor agrees it will transmit to the Federal Government those rights due the Federal Government in any invention resulting from the contract.

4. Federal Interest in Data and Copyrights

(a) Definition. The term "subject data" used in this section means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under the Contract. Examples include, but are not limited, to: computer software, engineering drawings and associated lists, specifications, standards, process sheets, manuals, technical reports, catalog item identifications, and related information. The term "subject data" does not include financial reports, cost analyses, and similar information incidental to Contract administration.

(b) Federal Restrictions. The following restrictions apply to all subject data first produced in the performance of the Contract. Except as provided in the Contract and except for its own internal use, the Contractor may not publish or publicly reproduce subject data in whole or in part, or in any manner or form, nor may the Contractor authorize others to do so, without the written consent of the County and the Federal Government, until such time as the Federal Government may have either released or approved the release of such data to the public.

GC-38 FEDERAL CLAUSES (CON'T.)

(c) Federal Rights in Data and Copyrights. In accordance with subparts 34 and 36 of the Common Rule, the County and the Federal Government reserve a royalty-free, non-exclusive and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use, for County or Federal Government purposes, the types of subject data described below. Without the copyright owner's consent, the County and Federal Government may not extend their license to other parties.

(1) Any subject data developed under the contract or subagreement financed by a federal Grant Agreement or Cooperative Agreement, whether or not a copyright has been obtained; and

(2) Any rights of copyright which the Contractor purchases ownership with Federal assistance.

(d) Special Federal Rights for Planning Research and Development Projects. When the Federal Government provides financial assistance for a planning, research, development, or demonstration project, its general intention is to increase public knowledge, rather than limit the benefits of the project to participants in the project. Therefore, unless the Federal Government determines otherwise, the Contractor on a planning, research, development, or demonstration project agrees that, in addition to the rights in data and copyrights set forth above, the County or Federal Government may make available to any third party either a license in the copyright to the subject data or a copy of the subject data. If the project is not completed for any reason whatsoever, all data developed under the project will become subject data and will be delivered as the County or Federal Government may direct. This subsection, however, does not apply to adaptions of automatic data processing equipment or previously existing software programs for the County's use whose costs are financed with Federal transportation funds for capital projects.

(e) Hold Harmless. Unless prohibited by state law, upon request by the County or the Federal Government, the Contractor agrees to indemnify, save, and hold harmless the County and the Federal Government and their officers, agents, and employees acting within the scope of their official duties against any liability, including costs and expenses, resulting from any willful or intentional violation by the Contractor of proprietary rights, copyrights, or right of privacy, arising out of the publication, translation, reproduction, delivery, use, or disposition of any data furnished under the Contract. The Contractor will not be required to indemnify the County or Federal Government for any such liability arising out of the wrongful acts of employees or agents of the County or Federal Government.

(f) Restrictions on Access to Patent Rights. Nothing contained in this section on rights in data will imply a license to the County or Federal Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the County or Federal Government under any patent.

(g) Application on Materials Incorporated into Project. The requirements of Subsections 2, 3, and 4 of this Section do not apply to material furnished by the County and incorporated into the work.

GC-38 FEDERAL CLAUSES (CON'T.)

5. Records and Audits

Contractor will deliver or cause to be delivered all documents (including but not limited to all Deliverables and supporting data, records, graphs, charts and notes) prepared by or for the County under the terms of this Agreement to the County promptly in accordance with the time limits prescribed in this Contract, and if no time limit is specified, then upon reasonable demand therefor or upon termination or completion of the Services hereunder. In the event of the failure by the Contractor to make such delivery, then and in that event, the Contractor will pay to County reasonable damages the County may sustain by reason thereof.

The County and the Federal Government will have the right to audit all payments made to the Contractor under this Agreement. Any payments to the Contractor which exceed the amount to which the Contractor is entitled under the terms of this Agreement will be subject to set-off.

The Contractor will keep and retain records relating to this Agreement and will make such records available to representatives of the County and the Federal Government, including without limitation the sponsoring federal agency, other participating agencies, and the Comptroller General of the United States, at reasonable times during the performance of this Agreement and for at least five years after termination of this Agreement for purposes of audit, inspection, copying, transcribing and abstracting.

No provision in this Agreement granting the County or the Federal Government a right of access to records is intended to impair, limit or affect any right of access to such records which the County or the Federal Government would have had in the absence of such provisions.

6. Environmental Requirements

The Contractor recognizes that many Federal and state laws imposing environmental and resource conservation requirements may apply to the Contract. Some, but not all, of the major Federal Laws that may affect the Contract include: the National Environmental Policy Act of 1969, as amended, 42 U.S.C. §§ 4321 et seq.; the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. and scattered sections of 29 U.S.C.; the Clean Water Act, as amended, scattered sections of 33 U.S.C. and 12 U.S.C.; the Resource Conservation and Recovery Act, as amended, 42 U.S.C. §§ 6901 et seq.; and the Comprehensive Environmental Response, Compensation, and Liability acct, as amended, 42 U.S.C. §§ 9601 et seq. The Contractor also recognizes that U.S. EPA, U.S. DOT and other agencies of the Federal Government have issued and are expected in the future to issue regulations, guidelines, standards, orders, directives, or other requirements that may affect the Contract. Thus, the Contractor agrees to adhere to, and impose on its subcontractors, any such Federal requirements as the Federal Government may now or in the future promulgate. Listed below are requirements of particular concern. The Contractor acknowledges that this list does not constitute the Contractor's entire obligation to meet all Federal environmental and resource conservation requirements. The Contractor will include these provisions in all subcontracts.

(a) Environmental Protection. The Contractor agrees to comply with the applicable requirements of the National Environmental Policy Act of 1969, as amended, 42 U.S.C. §§ 4321 et seq. in accordance with Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 59 Fed. Reg. 7629, Feb. 16, 1994; U.S. DOT statutory requirements on environmental matters at 49 U.S.C. § 5324(b); Council on Environmental Quality regulations on compliance with the National Environmental Policy Act of 1969, as amended, 40 C.F.R. Part 1500 et seq.; and U.S. DOT regulations, "Environmental Impact and Related Procedures," 23 C.F.R. Part 771 and 49 C.F.R. Part 622.

GC-38 FEDERAL CLAUSES (CON'T.)

(b) Air Quality. The Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. Specifically, the Contractor agrees to comply with applicable requirements of U.S. EPA regulations, "Conformity to State of Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act," 40 C.F.R. Part 51, Subpart T; and "Determining Conformity of Federal Actions to State or Federal Implementation Plans," 40 C.F.R. Part 93. The Contractor further agrees to report and require each subcontractor at any tier to report any violation of these requirements resulting from any Contract implementation activity to the County and the appropriate U.S. EPA Regional Office.

(c) Clean Water. The Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 et seq. . The Contractor further agrees to report and require each subcontractor at any tier to report any violation of these requirements resulting from any Contract implementation activity to the County and the appropriate U.S. EPA Regional Office.

(d) List of Violating Facilities. The Contractor agrees that any facility to be used in the performance of the Contract or to benefit from the Contract will not be listed on the U.S. EPA List of Violating Facilities ("List"), and the Contractor will promptly notify the County if the Contractor receives any communication from the U.S. EPA that such a facility is under consideration for inclusion on the List.

(e) Preference for Recycled Products. To the extent practicable and economically feasible and to the extent that it does not reduce or impair the quality of the work, the Contractor agrees to use recycled products in performance of the Contract pursuant to U.S. Environment Protection Agency (U.S. EPA) guidelines at 40 C.F.R. Parts 247-253, which implement section 6002 of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6962.

7. No Exclusionary or Discriminatory Specifications

Apart from inconsistent requirements imposed by Federal statute or regulations, the Contractor agrees that it will comply with the requirements of 49 U.S.C. § 5323(h)(2) by refraining from using any Federal assistance to support subcontracts procured using exclusionary or discriminatory specifications.

8. Cargo Preference - Use of United States Flag Vessels

The Contractor agrees to comply with U.S. Maritime Administration regulations, "Cargo-Preference – U.S. Flag Vessels," 49 C.F.R. Part 381, and to include the clauses required by those regulations, modified as necessary to identify the affected parties, in each subcontract or subagreement involving equipment, materials, or commodities suitable for transport by ocean vessel.

9. Fly America

Section 14.c of the Master Agreement states that if the contract or subcontracts may involve the international transportation of goods, equipment, or personnel by air, the contract must require Contractors and subcontractors at every tier to use U.S.-flag air carriers, to the extent service by these carriers is available. 49 U.S.C. 40118 and 4 C.F.R. Part 52.

GC-38 FEDERAL CLAUSES (CON'T.)

10. No Federal Government Obligations to Third Parties

The Contractor agrees that, absent the Federal Government's express written consent, the Federal Government will not be subject to any obligations or liabilities to any contractor or any other person not a party to the Grant Agreement or Cooperative Agreement between the County and the Federal Government which is a source of funds for this Contract. Notwithstanding any concurrence provided by the Federal Government in or approval of any solicitation, agreement, or contract, the Federal Government continues to have no obligations or liabilities to any party, including the Contractor.

11. Allowable Costs

Notwithstanding any compensation provision to the contrary, the Contractor's compensation under this Contract will be limited to those amounts which are allowable and allocable to the Contract in accordance with OMB Circular A-87 and the regulations in 49 C.F.R. Part 18. To the extent that an audit reveals that the Contractor has received payment in excess of such amounts, the County may offset such excess payments against any future payments due to the Contractor and, if no future payments are due or if future payments are less than such excess, the Contractor will promptly refund the amount of the excess payments to the County.

12. Trade Restrictions

Contractor certifies that neither it nor any Subcontractor:

(a) is owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

(b) has knowingly entered into any contract or subcontract with a person that is a citizen or national of a foreign country on said list, nor is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;

(c) will procure, subcontract for, or recommend any product that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no Notice-to-Proceed will be issued to an entity who is unable to certify to the above. If Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said list for use on the project, the USDOT may direct, through the County, cancellation of the Contract at no cost to the Government.

Further, Contractor agrees that it will incorporate this provision for certification without modification in each subcontract. Contractor may rely on the certification of a prospective Subcontractor unless it has knowledge that the certification is erroneous. Contractor will provide immediate written notice to the County if it learns that its certification or that of a Subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. Each Subcontractor must agree to provide written notice to Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances. Nothing contained in the foregoing will be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of the Contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 100

GC-38 FEDERAL CLAUSES (CON'T.)

13. Contract Work Hours and Safety Standards Act

If applicable according to their terms, the Contractor agrees to comply and assures compliance with sections 102 and 107 of the Contract Work Hours and Safety Standards Act, as amended, 40 U.S.C. §§ 327 through 333, and implementing U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5; and U.S. DOL regulations, "Safety and Health Regulations for Construction," 29 C.F.R. Part 1926. In addition to other requirements that may apply:

(a) In accordance with section of the Contract Work Hours and Safety Standards Act, as amended, 40 U.S.C. §§ 327 through 332, the Contractor agrees and assures that, for the Contract, the wages of every mechanic and laborer will be computed on the basis of a standard work week of 40 hours, and that each worker will be compensated for work exceeding the standard work week at a rate of not less than 1.5 times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The Contractor agrees that determinations pertaining to these requirements will be made in accordance with applicable U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.

(b) In accordance with section 107 of the Contract Work Hours and Safety Standards Act, as amended, 40 U.S.C. § 333, the contractor agrees and assures that no laborer or mechanic working on a construction contract will be required to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to his or her health and safety, as determined in accordance with U.S. DOL regulations, "Safety and Health Regulations for Construction," 29 C.F.R. Part 1926.

14. Veteran's Preference

In the employment of labor (except in executive, administrative, and supervisory positions), preference will be given to Vietnam-era veterans and disabled veterans. However, this preference may be given only where individuals are available and qualified to perform the work to which employment relates.

15. Copyright Ownership

Consultant and the County intend that, to the extent permitted by law, the Deliverables to be produced by Consultant at the County's instance and expense pursuant to this Agreement are conclusively deemed "works made for hire" within the meaning and purview of Section 101 of the United States Copyright Act, 17 U.S.C. §101 et seq. (the "Copyright Act"), and that the County will be the copyright owner of the Deliverables and of all aspects, elements and components of them in which copyright can subsist.

To the extent that any Deliverable does not qualify as a "work made for hire," Consultant irrevocably grants, conveys, bargains, sells, assigns, transfers and delivers to the County, its successors and assigns, all right, title and interest in and to the copyrights and all U.S. and foreign copyright registrations, copyright applications and copyright renewals for them, and other intangible, intellectual property embodied in or pertaining to the Deliverables prepared for the County under this Agreement, free and clear of any liens, claims or other encumbrances, to the fullest extent permitted by law. Consultant will execute all documents and perform all acts that the County may reasonably request in order to assist the County in perfecting its rights in and to the copyrights relating to the Deliverables, at the sole expense of the County. Consultant warrants to County, its successors and assigns, that on the date of transfer Consultant is the lawful owner of good and marketable title in and to the copyrights for the Deliverables and has the legal rights to fully assign them. Consultant further warrants that it has not assigned any copyrights nor granted any licenses, exclusive or nonexclusive, to any other party, and that it is not a party to any other agreements or subject to any other restrictions with respect to the Deliverables. Consultant warrants and represents that the Deliverables are complete and comprehensive, and the Deliverables are a work of original authorship.

GC-38 FEDERAL CLAUSES (CON'T.)

16. Accessibility Compliance

If this Agreement involves design for construction, the Consultant warrants that all design documents produced or utilized under this Agreement and all construction or alterations undertaken under this Agreement will comply with all federal, state and local laws and regulations regarding accessibility standards for persons with disabilities or environmentally limited persons including, but not limited to, the following: the Americans with Disabilities Act of 1990, 42 U.S.C. § 12101 et seq. and the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities ("ADAAG"); the Architectural Barriers Act, Pub. L. 90-480 (1968), and the Uniform Federal Accessibility Standards ("UFAS"); and the Illinois Environmental Barriers Act, 410 ILCS 25/1 et seq., and all regulations promulgated thereunder , see Illinois Administrative Code, Title 71, Chapter 1, Section 400.110. If the above standards are inconsistent, the Consultant must comply with the standard providing the greatest accessibility. Also, the Consultant must, prior to construction, review the plans and specifications to insure compliance with the above referenced standards. If the Consultant fails to comply with the foregoing standards, the Consultant must perform again, at no expense, all services required to be re-performed as a direct or indirect result of such failure.

17. Visual Rights Act Waiver

The Consultant/Contractor waives any and all rights that may be granted or conferred under Section 106A and Section 113 of the United States Copyright Act, (17 U.S.C. § 101 et seq.) (the "Copyright Act") in any work of visual art that may be provided pursuant to this Agreement,. Also, the Consultant/Contractor represents and warrants that the Consultant/Contractor has obtained a waiver of Section 106A and Section 113 of the Copyright Act as necessary from any employees and subcontractors, if any.

18. Equal Employment Opportunity

All contracts shall contain a provision requiring compliance with E.O. 11246, "Equal Employment Opportunity," as amended by E.O. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

19. Copeland "Anti-Kickback" Act (18 U.S.C. 874 and 40 U.S.C. 276c)

All contracts and subgrants in excess of $2000 for construction or repair awarded by recipients and subrecipients shall include a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. 874), as supplemented by Department of Labor regulations (29 CFR part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or subrecipient shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he is otherwise entitled. The recipient shall report all suspected or reported violations to the Federal awarding agency.

20. Davis-Bacon Act, as amended (40 U.S.C. 276a to a-7)

When required by Federal program legislation, all construction contracts awarded by the recipients and subrecipients of more than $2000 shall include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 276a to a-7) and as supplemented by Department of Labor regulations (29 CFR part 5, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction"). Under this Act, contractors shall be required to pay wages to laborers and mechanics at a rate not less than the minimum wages specified in a wage determination made by the Secretary of Labor. In addition, contractors shall be required to pay wages not less than once a week. The recipient shall place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation and the award of a contract shall be conditioned upon the acceptance of the wage determination. The recipient shall report all suspected or reported violations to the Federal awarding agency.

GC-38 FEDERAL CLAUSES (CON'T.)

21. Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333)

Where applicable, all contracts awarded by recipients in excess of $2000 for construction contracts and in excess of $2500 for other contracts that involve the employment of mechanics or laborers shall include a provision for compliance with Sections 102 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333), as supplemented by Department of Labor regulations (29 CFR part 5). Under Section 102 of the Act, each contractor shall be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than 1 ½ times the basic rate of pay for all hours worked in excess of 40 hours in the work week. Section 107 of the Act is applicable to construction work and provides that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

22. Rights to Inventions Made Under a Contract or Agreement

Contracts or agreements for the performance of experimental, developmental, or research work shall provide for the rights of the Federal Government and the recipient in any resulting invention in accordance with 37 CFR part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

23. Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), as amended

Contracts and subgrants of amounts in excess of $100,000 shall contain a provision that requires the recipient to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251 et seq.). Violations shall be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

24. Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)

Contractors who apply or bid for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient.

25. Debarment and Suspension (E.O.s 12549 and 12689)

No contract shall be made to parties listed on the General Services Administration's List of Parties Excluded from Federal Procurement or Nonprocurement Programs in accordance with E.O.s 12549 and 12689, "Debarment and Suspension." This list contains the names of parties debarred, suspended, or otherwise excluded by agencies, and contractors declared ineligible under statutory or regulatory authority other than E.O. 12549. Contractors with awards that exceed the small purchase threshold shall provide the required certification regarding its exclusion status and that of its principal employees.

GC-39 CONTRACT INTERPRETATION

Whenever the singular is used herein, the masculine, feminine and neuter gender shall be deemed to include the others. The headings of articles, paragraphs and sections in this Contract are included for convenience only and shall not be considered by either party in construing the meaning of this Contract. If any provision or clause of this Contract shall be held to be invalid, such provision or clause shall be deleted from the Contract and the Contract shall be construed to give effect to the remaining portions thereof.

This Contract shall be interpreted and construed based upon the following order of precedence of component parts. Such order of precedence shall govern to resolve all cases of conflict, ambiguity or inconsistency.

1. Addenda, if any.
2. Execution Forms
3. Specification.
4. Special Conditions.
5. General Conditions.
6. Instruction to Bidders.
7. Legal Advertisement.
8. Bid Proposal.

END OF SECTION

SPECIAL CONDITIONS

Section	Subject	Page
SC-01	Scope	SC-1
SC-02	Duration of Contract	SC-1
SC-03	Award of Contract	SC-2
SC-04	MBE/WBE Requirements for This Contract	SC-2
SC-05	Pre-Bid Conference	SC-2
SC-06	Inquires	SC-3
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SC-12	Alternate Proposal	SC-9
SC-13	Intentionally Left Blank	SC-10
SC-14	Special Equal Employment Opportunity Responsibilities (Nonfederal-Aid Contracts)	SC-11
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SC-17	Pre-Construction Conference	SC-25
SC-18	Construction Air Quality Diesel Vehicle Emissions Control (Green Construction Ordinance)	SC-25
SC-19	Processing Of Extra Work Payment Requests	SC-31
SC-20	Prevailing Wage	SC-32

SPECIAL CONDITIONS

SC-01 SCOPE

For the Maintenance of Traffic Signal Installations, Street and Roadway Lighting Systems, Navigation Lighting Systems, Bridge Cathodic Protection Systems, Storm Water Pumping Station Systems, and Maintenance Facilities Electrical Systems as shown on the list attached, all of which are under the jurisdiction of the Cook County Department of Transportation and Highways, State of Illinois.

SC-02 DURATION OF CONTRACT

Basic Term Requirement:

This Contract shall be in full force from 12:01 A.M. January 1, 2014 to 12:00 Midnight December 31, 2014 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, for reasons which the Department 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 service 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. There shall be no payment for incomplete work.

Subsequent to contract execution, the Contractor is expected to immediately begin preparations to assume maintenance responsibilities as specified.

This Department may take possession of the work and all materials, tools, and appliances thereon and thereat, and may finish the work by whatever method it may deem expedient at any time after cancellation notice has been served. This action may be taken by the Engineer for any reason which he deems to be in the public interest and his decision shall be final.

Certain preparatory work, such as determination of patrolman call numbers, spreadsheet development of patrol routes and the transfer of certain County stock inventory, mobilization, purchase of spare material for system equipment repairs and other items, as arranged with the Engineer, shall be performed and completed in advance of January 1, 2014. Such work shall be incidental to the contract.

Certain non-routine work may be authorized prior to January 1, 2014. The Contractor may begin activities on these early authorizations, such as ordering material or performing installation work that does not interfere with existing electrical systems. No payment or invoices will be accepted before January 1, 2014.

The contract shall remain in force, even following the completion of routine maintenance response requirements, until all required routine maintenance work initiated in the term is complete and accepted, and non-routine contract work is complete and accepted, including the correction of identified system deficiencies for transfer to the successful bidder of the subsequent contract, and until formal close-out of the contract.

Generally, the Engineer will cease issuing non-emergency non-routine work authorizations before the end of the routine maintenance term, however, the Engineer may authorize non-routine work while the contract remains in force, even after the end of the routine maintenance term, to facilitate timely completion or to foster integration with other work already authorized or where otherwise is in the interest of the County.

Incomplete routine or non-routine work without an approved delayed completion date may cause the application of liquidated damages of the routine maintenance payment, in accordance with terms as stated herein, from either December 31 or, if applicable, from any extended completion date not achieved.

SPECIAL CONDITIONS

In the final month of routine maintenance for the EMIM, the Engineer may apply a withholding of up to 75% of the final month's routine maintenance billing until all authorized routine and non-routine work is complete, but may progressively release portions of the retainage as the incomplete work is reduced. Key items for completion of work under a calendar year (or term) include:

- All routine works are complete and approved with all documentation.
- All workforce analysis reports are submitted and accepted.

Extension:
This Department shall, by agreement with the Contractor, have the option to renew this Contract for the period of one (1) year. This option would extend the Contract from 12:01 A.M. January 1, 2015 to 12:00 Midnight December 31, 2015. The Contract extension shall be at the same terms and conditions as the original Contract.

The Contract extension shall be made at the discretion of the Department and will be made ninety (90) days in advance of the expiration of the present Contract. The Contractor will then have thirty (30) days in which to acknowledge that He will or will not agree to the extension from the time he is in receipt of such notification. If He extends the Contract, He will have to provide documentation that the Contract Bond and all required insurance policies are extended through the extension period.

SC-03 AWARD OF CONTRACT

The contract shall be awarded to the lowest responsible and responsive bidder whose bid meets the requirements and criteria set forth in the Request for Sealed Bid. All items, unless otherwise stated, will be assumed to meet all specifications and requirements as set forth in the Request for Sealed Bid. Ambiguous bids which are uncertain as to terms, delivery, quantity, or compliance with specifications may be rejected or declared non-responsive. The County shall be sole determinant of the relevant and appropriate cost factors used in evaluating any Base, Options and/or Alternate bids. Bidders must quote all lines for consideration. It is the intent of the County to award this bid in whole and not in part. Only one award will result from this bid.

SC-04 MBE/WBE REQUIREMENTS FOR THIS CONTRACT

The bidder shall have a subcontracting goal of not less than 24 percent (24%) MBE and 10 percent (10%) WBE of the awarded contract price for work to be performed.

The bidder must comply with the County's MBE/WBE participation requirements. The County has issued MBE/WBE goals this Project. The bidder shall submit with its Proposal, an MBE/WBE Utilization Plan indicating how it proposes to meet these goals. If the bidder has not met the goals or made good faith efforts to meet the goals, the bidder's response will (may) be deemed nonresponsive and will not be considered for award.

Certified MBE/WBE bidders may count their own participation, however, a female firm certified as M/WBE or W/MBE may be counted towards the MBE or WBE goal, but not both. (Designations cannot be changed after submission of the compliance plan.)

Unless otherwise specified in the Bid Documents, for purposes of this contract, the contract amount is the total bid amount that has been entered on the Proposal Page of the Bid Documents.

SC-05 PRE-BID CONFERENCE

The County will hold a Pre-Bid Conference. Representatives from the Purchasing Department and Cook County Department of Transportation and Highways will comprise the panel to respond to answer any questions regarding this contract to Bid procedures. It is not mandatory that the Contractors attend this Pre-Bid Conference, however it is highly recommended.

Please kindly reserve your attendance with to Cho Ng at 312-603-2391 or via e-mail cho.ng@cookcountyil.gov before August 20, 2013, with firm's name and number of attendees. A maximum of two (2) representatives from each firm may attend.

SPECIAL CONDITIONS

The Pre-Bid Conference will be held on:

10:00 a.m., Tuesday, August 20, 2013
Cook County Building
118 N. Clark Street, Room 1018
Chicago, Illinois 60602

SC-06 INQUIRIES

A copy of any written request for interpretation of documents shall be provided to the Office of the Chief Procurement Officer at the address set forth below.

Inquiries about the interpretation of the Specifications must be made only in writing and shall be directed to the Chief Procurement Officer. Inquiries will be answered in writing, if deemed necessary, by means of an Addendum issued by the Office of the Chief Procurement Officer. (Reference Instructions to Bidders, Section IB-05 "Exceptions", Page IB-2). **Inquiries must be received no later than 3:00 p.m. Chicago Time on Friday, August 23, 2013.**

During the bid process, all inquiries must be directed, in writing, only to the Cook County Office of the Chief Procurement Officer as follows:

Shannon E. Andrews
Cook County Chief Procurement Officer
118 N. Clark Street, Room 1018
Chicago, IL 60602

Or via email to
Cho Ng, Senior Contract Negotiator

Contact Info for Cho Ng, 312-603-2391, cho.ng@cookcountyil.gov

SC-07 SURETY BOND

The bidder who submits the proposal accepted by the Board of County Commissioners will execute a contract and furnish a satisfactory surety bond in the amount of one hundred percent (100%) of the contract price within fifteen (15) days after receiving notice of acceptance, such acceptance being contingent upon the fulfillment of these requirements by the bidder. Failure upon the part of the bidder to so execute a contract and surety bond will be considered just cause for the forfeiture of the proposal guaranty as payment of liquidated damages sustained by the County of Cook as the result of such failure and the annulment of acceptance of the proposal. The surety bond must be acceptable to the Board of County Commissioners

SC-08 PRE-AWARD MEETING

The Contractor must attend a Pre-Award Meeting conducted at the time and place designated by the County, if required. All parties in the Contractor's organization having a supervisory or managerial role in this contract shall be in attendance. The County reserves the right to inspect the bidder's and subcontractors' facilities and other operations under their management prior to the award of this sealed bid.

SC-09 BILLING

All invoices and 29A voucher forms should be addressed to the following locations:

Cook County Department of Transportation and Highways
Design Bureau
69 West Washington Street, 21st Floor
Chicago, IL 60602

SPECIAL CONDITIONS

SC-10 GENERAL INFORMATION

1) If the prospective bidder is in doubt as to the meaning of any part of the plans, specifications of other proposed contract documents, they may submit a written clarification to the Chief Procurement Officer (CPO) for an interpretation thereof. The prospective bidder submitting the request will be responsible for the prompt delivery to the Chief Procurement Officer. Any interpretation of the proposal documents will be made by an addendum duly issued through the Cook County Purchasing website.

2) An estimate of quantities of work to be done and material to be furnished under the specifications will be found in the Schedule of Prices. It is the result of calculations and is given as a basis for a comparison of bids and award of a contract.

3) The bidder should include in the bid price in his bid for any taxes such as Occupational, Social Security, Unemployment Compensation, etc., which he might be required to pay in connection with the construction of the proposed improvement. The County of Cook will not reimburse the Contractor for the payment of any such taxes.

4) The Board of County Commissioners for the County of Cook reserves the right to reject any or all bids and to waive technicalities of form. Bids may be rejected if current work being performed for the County of Cook by the bidder has been unsatisfactory from the standpoint of workmanship or progress, or if the contractor has been awarded work by others subsequent to the issuance of the bid, which may, in the judgment of said Board of County Commissioners of Cook County endanger the prompt completion of the proposed improvement.

5) The bidder shall include in his bid a Bid Guarantee in accordance with provisions contained in the solicitation document.

6) If bidder is submitting a bid as a Joint Venture, bidder shall complete the County's Joint Venture Forms and shall submit such Joint Venture Forms **when the bid is submitted**. Bidder is reminded that compliance with the Assumed Business Name Act (805 ILCS 405/1 et seq.) is required of all Joint Ventures.

SC-11 BIDDING REQUIREMENTS AND CONDITIONS FOR CONTRACT PROPOSALS

Qualification of Bidders
The Awarding Authority for contract construction work is the County Board of a County. Each prospective bidder, in evidence of competence, shall furnish the Awarding Authority a certified copy of a "Certificate of Eligibility" issued by the Illinois Department of Transportation, and Contractor's Statement of Experience and Financial Condition" with their bid. Each prospective bidder shall furnish a sworn statement as to equipment owned and controlled, previous experience and construction work.

If the bidder to whom the award is made is a corporation organized under the laws of the State other than Illinois, the bidder shall furnish the Awarding Authority a copy of the corporation's Certificate of Authority to do business in the State of Illinois with the bid.

The bidder must provide the Awarding Authority a sworn Affidavit of Availability showing all uncompleted contracts awarded to them and all low bids pending award for Federal, State, County, Municipal and private work in the bid. The bidder should file two (2) copies of same with IDOT's District office.

Examination of Plans, Specifications, Special Provisions, and Site of Work
The bidder shall, before submitting a bid, carefully examine the provisions of the contract. The bidder shall inspect in detail the site of the proposed work, investigate and become familiar with all the local conditions affecting the contract and fully acquaint themselves with the detailed requirements of construction. Submission of a bid shall be a conclusive assurance and warranty the bidder has made these examinations and the bidder understands all requirements for the performance of the work. If the submitted bid is accepted, the bidder shall be responsible for all errors in the bid resulting from the bidder's failure or neglect to comply with these instructions. The Awarding Authority will, in no case, be responsible for any costs, expenses, losses, or change in anticipated profits resulting from such failure or neglect of the bidder to make these examinations.

The bidder shall take no advantage of any error or omission in the bid documents and advertised contract. Any prospective bidder who desires an explanation or interpretation of the plans, specification, or any of the contract documents shall request such in writing from the Awarding Authority in sufficient time to allow a written reply by the Awarding Authority that can reach all prospective bidders before the submission of their bids. Any reply given a prospective bidder concerning any of the contract documents, plans, and specifications will be furnished to all prospective bidders in the form determined by the Awarding Authority including, but not limited to, an addendum, if the information is deemed by the Awarding Authority to be necessary in submitting bids or if the Awarding Authority concludes the information would aid competition. Oral explanations, interpretations, or instructions given before the submission of bids unless at a pre-bid conference will not be binding on the Awarding Authority. . (This is an addition to Instructions to Bidders Section IB-3 "Site Inspection Certificate", Page IB-1, if applicable)

Changes in Improvement
The undersigned agrees that in case the Superintendent of Cook County Department of Transportation and Highways decides either to extend or decrease the area of the proposed service or to do both or otherwise alter it by extras or deductions including the elimination of any one or more of the quantities listed in the Schedule of Prices the undersigned will make such change in the contract price by adding or subtracting there from as the case may be by applying the respective unit prices to the quantities of the several items of work that may be involved by reason of such change.

Preparation of the Bid
Bidders shall submit their bids on the form furnished by the Awarding Authority. The bid shall be executed properly, and bids shall be made for all items indicated in the bid form, except when alternate bids are asked, a bid on more than one alternate for each item is not required, unless otherwise provided. The bidder shall indicate in figures, a unit price for each of the separate items called for in the bid form; the bidder shall show the products of the respective quantities and unit prices in the column provided for that purpose, and the gross sum shown in the place indicated in the bid form shall be the summation of said

products. All writing shall be with ink or typewriter, except the signature of the bidder which shall be written in ink.

Any erasures or alterations in the unit prices and/or in the products of the respective quantities and unit prices in the bid, must be properly authenticated by the bidder by initialing in ink such erasures or alterations to avoid cause for rejection of the bid in accordance with Title 44 Illinois Administrative Code Chapter IX Section 660.180.

If the bid is made by an individual, that individual's name and business address shall be shown. If made by a firm or partnership, the name and business address of each member of the firm or partnership shall be shown. If made by a corporation, the bid shall show the names, titles, and business addresses of the president, corporate secretary and treasurer. The bid shall be signed by president or someone with authority to execute contracts and attest by the corporate secretary or someone with authority to execute or attest to the execution of contracts. (This is an addition to Instructions to Bidders Section IB-02 "Preparation of Bid Proposals", Page IB-1).

Rejection of Bids

The Awarding Authority reserves the right to reject any bids for any of the conditions listed below:

a) More than one bid for same work from an individual, firm partnership, or corporation under the same name or different names.

b) Evidence of collusion among bidders.

c) Unbalanced bids in which the bid prices for some items are, in the judgment of the Awarding Authority, out of proportion to the bid prices for other items.

d) If the bid does not contain a unit price for each pay item listed except in the case of authorized alternate pay items or lump sum pay items.

e) If the bid form is other than that furnished by the Awarding Authority; or if the form is altered or any part thereof is detached.

f) If there are omissions, erasures, alterations unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the bid incomplete, indefinite or ambiguous as to its meaning.

g) If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.

h) If the proposal is not accompanied by the proper bid guaranty.

i) If the bid is prepared with other than ink or typewriter, or otherwise fails to meet the requirement of the above "Preparation of Proposal" section.

j) Lack of Competency and adequate machinery, plant, and other equipment, as revealed by the financial statement and experience questionnaires required in the prequalification procedures.

k) Uncompleted work which, in the judgment of the Awarding Authority, might hinder or prevent the prompt completion of additional work awarded.

l) False information provided on a bidder's "Affidavit of Availability".

m) Failure to pay, or satisfactorily settle, all bills due for labor and material on former contracts in force at the time of issuance of bid forms.

n) Failure to comply with any prequalification regulations of the Department.

o) Default under previous contracts.

p) Unsatisfactory performance record as shown by past work for the Awarding Authority, judged from the standpoint of workmanship and progress.

q) When the contractor is suspended from eligibility to bid at a public letting where the contract is awarded by, or requires approval of, the Department.

r) When any agent, servant, or employee of the prospective bidder currently serves as a member, employee, or agent of a governmental body that is financially involved in the proposal work.

s) When any agent, servant, or employee of the perspective bidder has participated in the preparation of plans or specifications for the proposed work.

Bid Guaranty

Each bid shall be accompanied by a bid bond on the Department form contained in the bid document, executed by a corporate surety company satisfactory to the Awarding Authority, by a bank cashier's check or a properly certified check for not less than five percent (5%) of the amount bid, or for the amount specified in the following schedule:

	Amount Bid	Proposal Guaranty
Up to	$5,000	$150
$5,000	$10,000	$300
$10,000	150,000	$1,000
$50,000	$100,00	$3,000
$100,000	$150,000	$5,000
$150,000	$250,000	$7,500
$250,000	$500,000	$12,500
$500,000	$1,000,000	$25,000
$1,000,000	$1,500,000	$50,000
$1,500,000	$2,000,000	$75,000
$2,000,000	$3,000,000	$100,000
$3,000,000	$5,000,000	$150,000
$5,000,000	$7,500,000	$250,000
$7,500,000	$10,000,000	$400,000
$10,000,000	$15,000,000	$500,000
$15,000,000	$20,000,000	$600,000
$20,000,000	$25,000,000	$700,000
$25,000,000	$30,000,000	$800,000
$30,000,000	$35,000,000	$900,000
Over	$35,000,000	$1,000,000

In the event that one proposal guaranty check is intended to cover two or more bids, the amount must equal to the sum of the bid guaranties, which would be required for each individual proposal.

Bank cashier's checks or properly certified checks accompanying bids shall be made payable to the County Treasurer, when a County is the Awarding Authority; or the City, Village, or Town Treasurer, when a city, village or town is the Awarding Authority.

The bid guaranty checks of all except the two (2) lowest responsible bidders will be returned promptly after the bids have been checked, tabulated, and the relation of the bids established. Bid guaranty checks of the two lowest responsible bidders will be returned as soon as the contract and contract bond of the successful bidder have been properly executed and approved. Bid bonds will not be returned.

After a period of three (3) working days has elapsed after the date of opening proposals, the Awarding Authority may permit the two lowest bidders to substitute for the banks cashier's checks or certified checks submitted with their bids as proposal guaranties, bid bonds on the Department forms executed by corporate surety companies satisfactory to the Awarding Authority. (This is an addition to Instructions to Bidders Section IB-04 "Bid Deposit", Page IB-2).

Public Opening of Bids
Bids will be opened and read publicly at the time and place specified in the Notice to Bidders. Bidders, their authorized agents, and other interested parties are invited to be present. (This is an addition to Instructions to Bidders Section IB-11 "Consideration of Bid Proposals", Page IB-3).

Failure to Execute Contract
If the contract is not executed by the Awarding Authority within 90 days from the bid opening, the bidder shall have the right to withdraw their bid without penalty.

Failure of the successful bidder to provide all required insurance and bonding within **fourteen (14) days after the award notification** shall be just cause for the cancellation of the award and the forfeiture of the bid guaranty which shall become the property of the Awarding Authority, not as penalty, but in liquidation of damages sustained. Award may then be made to the next lowest responsible bidder, or the work may be advertised again and constructed under contract, or otherwise, as the Awarding Authority may decide.

SC-12 ALTERNATE PROPOSAL
The Bidder certified that this bid and the unit prices shown on the schedule of prices are based on performing the work in accordance with "An Act Regulating the Wages of Laborers, Mechanics and other Workers employed under contracts for Public Works" enacted by the 62nd General Assembly and approved June 26, 1941, as amended. Should said "Act" be declared inoperative, void or unconstitutional at any time, either before or after the awarding of the contract for this project, the bidder agrees to perform the work at a reduction of _____ per cent, of the unit prices shown on the schedule of prices, it being expressly understood and agreed that the within bid shall be and remain in full force and effect, regardless of whether the said "Act" is declared to be inoperative, void or unconstitutional. The contract for this project is to be awarded on the bases of the unit prices shown on the schedule of prices, and the percentage reduction, if any, act out in this alternative proposal, is to receive no consideration in the award of this contract.

Should the said "Act" be declared inoperative, void or unconstitutional at any time after the awarding of said contract, whether before, during or after the completion of the work, the said contract shall remain in full force and effect, and shall be subject only to said reduction, if any, in the unit prices shown on the schedule of prices.

NOTE: The Bidder shall insert in the first paragraph the percentage which he will reduce his unit prices, if any, in the event the Act is declared inoperable, void or unconstitutional.

ORDINANCE

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BE IT ENACTED BY THE BOARD OF COMMISSIONERS OF THE COUNTY OF COOK, that the Chief Procurement Officer of Cook County shall specify in the call for bids in any contract for public works that such contractors bidding on public works contracts of the County of Cook shall conform to Illinois Compiled Statutes, Chapter 30, Section 560/1 and following, which Act is entitled "An Act" to give

preference in the construction of public works projects and improvements to citizens of the United States who have resided in Illinois for one year". The Chief Procurement Officer of Cook County in awarding the contract shall cause to be inserted in the contract a stipulation to the effect that the contractor shall conform to the above cited Illinois Statute.

SC-13 INTENTIONALLY LEFT BLANK

SC-14 SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES NONFEDERAL-AID CONTRACTS

1) **General**
   a) The requirements set forth herein shall constitute the specific affirmative action requirements under this contract and supplement the non-discrimination requirements contained elsewhere in this proposal.

   b) The contractor will work with the Cook County Department of Transportation and Highways in carrying out Equal Employment Opportunity (EEO) obligations and in their reviews of activities under the contract.

   c) The contractor, and all subcontractors holding subcontracts (not including material suppliers) of $10,000.00 or more, will comply with the following minimum specific requirement activities of equal employment opportunity the contractor will include these requirements in every subcontract of $10,000.00 or more with such modification of language as is necessary to make them binding on the subcontractor.

2) **Equal Employment Opportunity Policy**
   The contractor will accept as operating policy the following statement which is designed to further the provision of Equal Employment Opportunity to all persons, and to promote the full realization of equal employment opportunity through a positive continuing program:

   "It is the policy of this company to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

3) **Equal Employment Opportunity Officer**
   The contractor will designate and make known to the Cook County Department of Transportation and Highways contracting officers an EEO officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of Equal Employment Opportunity and who must be assigned adequate authority and responsibility to do so.

4) **Dissemination of Policy**
   a) All members of the contractor's staff who are authorized to hire, supervise, promote and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide Equal Employment Opportunity in each grade and classification of employment, to ensure that the above agreement will be met, the following actions will be taken as a minimum:

      (1) periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO officer.

(2) All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO officer, covering all major aspects of the contractor's EEO obligations within thirty (30) days following their reporting for duty with the contractor.

(3) All personnel who are engaged in direct recruitment for the project will be instructed by the EEO officer in the contractor's procedures for locating and hiring minority and female employees.

b) In order to make the contractor's EEO policy known to all employees, prospective employees and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the contractor will take the following actions:

(1) Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

(2) The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

5) Recruitment

a) When advertising for employees, the contractor will include in all advertisements for employees the notation: "an Equal Opportunity Employer". All such advertisements will be published in newspapers, or other publications, having a large circulation among minority groups in the area from which the project work force would normally be derived.

b) The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority and female applicants; including, but not limited to, state employment agencies, schools, colleges and minority and female organizations. To meet this requirement, the contractor will identify sources of potential minority and female employees, and establish with such identified sources procedures whereby minority and female applications may be referred to the contractor for employment consideration.

In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referral, he is expected to observe the provisions of that agreement to the extend that the system permits the contractor's compliance with eeo contract provisions.

c) The contractor will encourage present employees to refer minority and female applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring minority and female applicants will be discussed with employees.

6) Personnel Actions

Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and terminations, will be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a) The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b) The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c) The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d) The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with the obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of the avenues of appeal.

7) Training and Promotion

a) The contractor will assist in locating, qualifying and increasing the skills of minority and female employees and applicants for employment.

b) Consistent with the contractor's work force requirements and as permissible under federal and state regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance.

c) The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d) The contractor will periodically review the training and promotion potential of minority and female employees and will encourage eligible employees to apply for such training and promotion.

Unions

If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use their best efforts to obtain the cooperation of such unions to increase opportunities form minorities and females within the unions and to effect referrals by such unions of minority and female employees. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

e) The contractor will use best efforts to develop, in cooperation with the unions. Joint training programs aimed toward qualifying more minority and female employees for membership in the unions and increasing the skills of minority and female employees so that they may qualify for higher paying employment.

f) The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

g) The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the Cook County Department of Transportation and Highways and shall set forth what efforts have been made to obtain such information.

h) In the event the union is unable to provide the contractor with a reasonable flow of minority and female referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and females. (The U.S. Department of Labor has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minorities or female employees). In the event the

union referral practice prevents the contractor from meeting the obligations pursuant to these special provisions, such contractor shall immediately notify the Cook County Department of Transportation and Highways.

8) Selection of subcontractors, procurement of materials and leasing of equipment
The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a) The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligation under this contract.

b) Minority and Women Owned Business Enterprises, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use best efforts to solicit bids from and to utilize M/WBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

c) The contractor will use his/her best efforts to ensure subcontractor compliance with their EEO obligations.

9) Records and reports
The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three (3) years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Cook County Department of Transportation and Highways.

a) The records kept by the contractor shall document the following:

(1) The number of minorities, non-minorities and females employed in each work classification on the project.

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and females;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and,

(4) The progress and efforts being made in securing the services of M/WBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b) The contractor will submit to the Cook County Department of Transportation and Highways a monthly report every month for the duration of the project, indicating the number of minority, non-minority and female employees currently engaged in each work classification required by contract work and the number of hours worked. This information is to be reported on form SBE-956. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

Notice of requirement for affirmative
Action to ensure equal employment
Opportunity (executive order 11246)

(1) The offeror's or bidder's attention is called to the "equal opportunity clause" and the "standard federal equal employment opportunity construction contract specifications" set forth herein.

SPECIAL CONDITIONS

(2) The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

APPENDIX A

The following goal for female utilization in each construction craft and trade shall apply to all contractors holding federal and federally assisted construction contracts and subcontracts in excess of $10,000.00. The goal is applicable to the contractor's total on-site construction workforce, regardless of whether or not part of that workforce is performing work on a federal, federally assisted or non-federally related construction contract or sub contract. Area covered (statewide) goals for women apply nationwide.

Goal	Goal (Percentage)
Female Utilization	6.9

APPENDIX B

Until further notice, the following goals for minority utilization in each construction craft and trade shall apply to all contractors holding federal or federally-assisted construction contracts and subcontracts in excess of $10,000.00 to be performed in the respective geographical areas. The goals are applicable to the contractor's total on-site construction workforce, regardless of whether or not part of that workforce is performing work on a federal, federally-assisted or non-federally related construction contract or subcontract.

Economic area	Goal (percent)
083 Chicago, IL Smsa Counties: 1600 Chicago, IL - IL - Cook, DuPage, Kane, Lake, McHenry, Will	19.6

These goals are applicable to all the contractor's construction work (whether or not it is federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction. The contractor's compliance with executive order and the regulations in 41 cfr part 60-4 shall be based on its implementation of the equal opportunity clause, specific affirmative action obligations required by the provisions and specifications set forth in its federally assisted contracts, and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority of female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the executive order and the regulations in 41 cfr part 60-4. Compliance with the goals will be measured against the total work hours performed.

(3) As used in this notice, and in the contract resulting from this solicitation, the "covered area" is the entire state of Illinois for the goal set forth in **Appendix A** and the county or counties in which the work is located for the goals set forth in **Appendix B**.

Standard federal equal employment
Opportunity construction contract
Specifications (executive order 11246)

SPECIAL CONDITIONS

1) As used in these specifications:

   a) "covered area" means the geographical area described in the solicitation from which this contract resulted;

   b) "director" means director, office of federal contract compliance programs, united states department of labor, or any person to whom the director delegates authority;

   c) "employer identification number" means the federal social security number used on the employer's quarterly federal

   Tax return, U.S. Treasury Department form 941.

   d) "minority" includes:

      i) Black (all persons having origins in any of the black African racial groups not of Hispanic origins);

      ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, central or south American or other Spanish culture or origin, regardless of race);

      iii) Asian and pacific islander (all persons having origins in any of the original peoples of the far east, southeast Asia, the Indian subcontinent, or the pacific islands); and

      iv) American Indian or Alaskan native (all persons having origins in any of the original peoples of north America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2) Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000.00 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3) If the contractor is participating (pursuant to 41 cfr 60-4.5) in a hometown plan approved by the U. S. Department of Labor in the covered area wither individually or through an association, its affirmative action obligations on all work in the plan area (including goals and timetables) shall be in accordance with that plan for those trades which have unions participating in the plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such hometown plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

4) The contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a federal or federally assisted construction

SPECIAL CONDITIONS

Contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the federal register in notice form, and such notices may be obtained from any office of federal contract compliance programs office or from federal procurement contracting officers. The contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the contractor's obligations under these specifications, executive order 11246, or the regulations promulgated pursuant thereto.

6) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7) The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

   a) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

   c) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the contractor may have taken.

   d) Provide immediate written notification to the director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or woman sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

   e) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources complied under 7b above.

SPECIAL CONDITIONS

f) Disseminate the contractor's eeo policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its eeo obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company eeo policy on bulletin boards accessible to all employees at each location where construction work is performed.

g) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h) Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's eeo policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship of other training by any recruitment source, the contractor shall send written notifications such as the above, describing the openings, screening procedures, and test to be used in the selection process.

j) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k) Validate all tests and other selection requirements here there is an obligation to do so under 41 cfr part 60-3.

l) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n) Ensure that all facilities and company activities are no segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p) Conduct a review, at least annually, of all supervisors' adherence to and performance under the contractor's EEO policies and affirmative action obligations.

SPECIAL CONDITIONS

8) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community , or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, make a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply however is the contractor's and failure of such a group to fulfill and obligation shall not be a defense for the contractor's noncompliance.

9) A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the contract may be in violation of the executive order if a particular group is employed in a substantially disparate manner, (for example, even though the contractor has achieved its goal for women generally, the contractor may be in violation of the executive order if a specified minority group of women is underutilized).

10) The contractor shall not use the goals and timetables of affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11) The contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to executive order 11246.

12) The contractor shall carry out such sanctions and penalties for violation of the specifications and of the equal opportunity clause, including suspension, termination and cancellation of existing subcontracts, as may be imposed or ordered pursuant to executive order 11246, as amended and its implementing regulations, by the office of federal contract compliance programs. Any contractor who fails to carry out sanctions and penalties shall be in violation of these specifications and executive order 11246, as amended.

13) The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the executive order, the implementing regulations, or these specifications, the director shall proceed in accordance with 41 cfr 60-4.8.

14) The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being out, to submit reports relating to provisions hereof as may be required by the government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes of status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15) Nothing herein provided shall be construed as a limitation upon the application of other laws which establish standards of compliance or upon the application requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

SPECIAL CONDITIONS

SC 15 JOINT VENTURES

Contractors submitting a bid as a joint venture shall comply with the following procedures:

1) Contractors may combine their available bidding capacity for a single contract to bid as a joint venture.

2) The joint venture shall be indicated by the filing of a ***Joint Venture Minimum Declaration of Work*** for each of the contracts for which joint venture approval is sought. It identifies the managing partner and indicated the kind and the percentage of work to be performed by each joint venture partner with its own workforce and resources other than work reserved to meet any disadvantage business goal advertised in the contract. The form indicated the joint venture agreement shall be included in the bid. In addition, each joint venture partner firm shall submit an ***Affidavit of Availability***. The ***Joint Venture Minimum Declaration of Work*** and all ***Affidavits of Availability*** **must be included in the bid.** The proposed joint venture shall not be approved if the establishment of a joint venture would unduly restrict competition. A determination that a proposed venture would unduly restrict competition is limited to any of the following reasons:

   a) That the proposed joint venture would consist of more than three (3) qualified contractors.

   b) That the ***Joint Venture Minimum Declaration of Work*** indicated that any one of the proposed joint ventures partners will perform less than ten percent of the non-disadvantage business work with its own workforce and resources.

   c) That for letting items estimates by the Department to be bid at less than $1,000,000.00 more than one of the proposed joint venture partners has the individual qualification ratings and bid the item without the approval of the venture. This determination shall not apply to joint ventures between firms having fifty-one percent or more common controlling ownership or on items where the estimated quantity of asphalt exceeds 10,000 tons or concrete exceeds 5,000 cubic yards. Each proposed joint venture shall submit, with the bid, a ***Joint Venture Certificate of Explanation and Justification*** for each of the contracts estimated at less than $1,000,000.00 for which joint venture approval is sought. The form indicated the circumstances which apply to the joint venture. That is there fifty-one percent (51%) or more common controlling ownership, or does one or more parties to the joint venture not have the financial capacity, work capacity or work categories to complete the project. The ***Joint Venture Certificate of Explanation*** **must be included in the bid.**

3) Contractors whose financial ratings are based upon unaudited financial statements will not be permitted to joint venture with each other to bid contracts which are estimated to exceed $350,000.00. However, such contractors may be permitted to joint venture with contractors who have a financial rating based upon an audited statement to bid contracts estimated to exceed $350,000.00.

4) If a joint venture work rating is limited by its maximum financial rating, the full value of the computed work rating will be used in analyzing the joint venture approval request. However, the combined maximum work rating in any category shall not exceed the combined maximum financial rating of the joint venture.

5) If an approved joint venture is awarded a contract, the kind and percentage of work indicated on the ***Joint Venture Minimum Declaration of Work*** may be amended as many times as necessary by the contractor provided that each partner of the approved joint venture performs at least ten percent of the nondisadvantaged work with its own workforce and resources.

Copies of all required Joint Venture Forms are attached.

Please note that signed and notarized originals of all required Joint Venture Forms mentioned above **must be included in the bid.** This includes ***Affidavits of Availability*** for all parties to the joint venture.

SC-16 Intentionally Left Blank

SC-17 PRE-CONSTRUCTION CONFERENCE

After the award of the contract and before construction is started, a conference shall be held at a time and place to be designated by the County.

The purpose of the conference shall be to co-ordinate the work to be performed and adopt a schedule of operations.

The conference will be attended by representatives of the participating agencies together with the public and private agencies whose facilities are involved in the construction of the project.

SC-18 CONSTRUCTION AIR QUALITY DIESEL VEHICLE EMISSIONS CONTROL (GREEN CONSTRUCTION ORDINANCE)

Description. Diesel Vehicle Emissions Control. The reduction of construction air emissions shall be accomplished by using cleaner burning diesel fuel. All equipment on the jobsite as defined by section 30-952 (a) of the Cook County Green Construction Ordinance (ORDINANCE) shall be required to use Ultra Low Sulfur Diesel fuel (ULSD) exclusively (15 ppm sulfur content or less). Equipment shall include any "rental" equipment. In addition, the Contractor is required to comply with section 30-954 -3(c) related to engine idling.

Diesel powered equipment in non-compliance will not be allowed to be used on the project site, and is also subject to adjudication in accordance with the attached Ordinance. Liquidated damages as per section 30-955 (c) of the ORDINANCE will not apply until such time as the level 2 or 3 controls are phased in.

The Contractor is required to submit a list of equipment to be used on the project to the Cook County Department of Environmental Control (DEPARTMENT), as stated in section 30-954(a) and (b) of the ORDINANCE, and shall copy the Cook County Department of Transportation and Highways - Construction Bureau on that submittal. The 30 day submittal stipulation cited in section 30-954(a) of the ORDINANCE will be enforced. The Contractor may not begin work on the project unless acknowledgement by the DEPARTMENT of their receipt of the list is provided to the Construction Bureau of the Cook County Department of Transportation and Highways. At this time, the list will be used for statistical data only. The Contractor is not required to meet portions of the ordinance related to level 2 or 3 controls as outlined in the ORDINANCE until such time as stipulated in the ordinance. If additional equipment is to be used on a project that was not on the original equipment list submitted to the DEPARTMENT, the Contractor must follow the same procedure as outlined above. Short term usage of equipment shall be as stated in section 30-952(3)(c)(1) of the ORDINANCE.

The Contractor shall submit copies of monthly summary reports to the DEPARTMENT and include certified copies of the ULSD fuel delivery slips for diesel fuel delivered to the jobsite for the reporting time period, noting the quantity of diesel fuel used.

The ORDINANCE is attached and made a part of this contract. Contact information for the Department of Environmental Control is given below.

Basis of Payment. Any costs associated with compliance with this special provision and the Green Construction Ordinance 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.

Cook County Department of Environmental Control

SPECIAL CONDITIONS

69 West Washington Street Room 1900
Chicago, IL 60602
Re: Cook County Green Construction Ordinance
Phone: 312-603-8200

09-0-36

ORDINANCE

Sponsored by

THE HONORABLE TODD H. STROGER, PRESIDENT

AND ROBERTO MALDONADO, JOAN PATRICIA MURPHY AND PETER N. SILVESTRI

COUNTY COMMISSIONERS

Co-Sponsored by

THE HONORABLE JOHN P. DALEY, ELIZABETH "LIZ" DOODY GORMAN,

JOSEPH MARIO MORENO, DEBORAH SIMS, ROBERT B. STEELE

AND LARRY SUFFREDIN, COUNTY COMMISSIONERS

COOK COUNTY GREEN CONSTRUCTION ORDINANCE

BE IT ORDAINED, by the Cook County Board of Commissioners that Chapter 30 Environment, Article IX Green Construction, Sections 30-950 through 30-955 of the Cook County Code is hereby enacted as follows:

ARTICLE IX. GREEN CONSTRUCTION

Sec. 30-950. Board of Commissioners findings.

a) Diesel exhaust particle pollution poses a clear and present health risk to the people of Cook County. The United States Environmental Protection Agency has classified diesel exhaust as a likely human carcinogen, and has identified diesel particulate matter and diesel exhaust organic gases as toxic air pollutants. Diesel exhaust is also a prime contributor to airborne fine particle pollution that is linked to premature death and other serious cardiovascular and pulmonary problems such as heart attacks, abnormal heart rhythms, atherosclerosis, stroke, asthma attacks, permanent respiratory damage and retardation of lung growth in children.

b) Cook County is a USEPA designated non-attainment area for fine particulate matter pollution.

c) The health impacts from diesel emissions particularly affect children, the elderly, and people with weakened immune systems.

d) Particularly high concentrations of diesel emissions often occur in heavily traveled transportation corridors, intermodal yards, bus depots, and construction sites; these diesel "hot spots" often are

found in densely populated, urban areas, disproportionately impacting ethnic minorities and people of lower economic status.

e) Diesel engine crankcases also are a source of emissions that can seep into the cabin and expose vehicle drivers and passengers to harmful diesel emissions.

f) Diesel exhaust also contains black carbon emissions, which contribute to global climate change.

g) Reduction of diesel emissions can help address these human health and environmental problems.

h) The United States Environmental Protection Agency has enacted requirements over the past few yeas requiring the substantial reduction of emissions from new diesel engines in both heavy duty highway vehicles and land-based non-road equipment. However, these regulations do not apply to any of the over 11 million existing diesel engines in the United States, most of which emit substantially more pollution and often remain in service for 10 to 30 years, depending on the type of engine and equipment.

i) Practical, cost-effective measures to substantially reduce diesel particulate emissions are available today, and can be applied to many existing diesel engines. The same technology that limits diesel pollution from new diesel engines can be retrofitted onto existing engines or applied in new replacement engines to reduce diesel emissions by 85% or better.

j) Therefore, the purpose of this ordinance is to minimize the public health risks from exposure to diesel particulate emissions as expeditiously as practicable.

Sec. 30-951. Definitions.

CARB means the California Air Resources Board.

County, as used in this chapter (with the exception of the use of the words to describe or identify the Government or Board of Commissioners thereof), means all of the territory in the County exclusive of the City of Chicago.

Department means the Cook County Department of Environmental Control.

Fleet means one or more diesel vehicles or mobile or stationary diesel engines owned or operated by the same person or group of related persons.

Heavy duty diesel vehicle means a motor vehicle with a gross vehicle weight rating of at least 8,500 pounds that is powered by a diesel engine.

Level 1 Control means a Verified Diesel Emission Control Device that achieves a particulate matter (PM) emission reduction of 25% or more from uncontrolled engine emission levels.

Level 2 Control means a Verified Diesel Emission Control Device that achieves a particulate matter (PM) emission reduction of 50% or more from uncontrolled engine emission levels.

Level 3 Control means a Verified Diesel Emission Control Device that achieves a particulate matter (PM) emission reduction of 85% or more from uncontrolled engine emission levels, or that reduces emissions to less than or equal to 0.01 grams of PM per brake horsepower-hour. Level 3 Control includes repowering or replacing the existing diesel engine with an engine meeting USE PA's 2007 Heavy-duty Highway Diesel Standards (66 Fed. Reg. 5002), or in the case of a non-road engine, an engine meeting the USE PA's Tier 4 Nonroad Diesel Standards (69 Fed. Reg. 38958); Level 3 Control also includes new diesel engines meeting said emissions standards.

Motor vehicle means any self-propelled vehicle designed for transporting persons or property on a street or highway, including an on-road diesel vehicle.

Nonroad engine means an internal combustion engine (including the fuel system) that is not used in a motor vehicle or a vehicle used solely for competition, or that is not a stationary source, except that this term shall apply to internal combustion engines used to power generators, compressors or similar equipment used in any construction program or project.

Nonroad Vehicle means a vehicle or equipment that is powered by a nonroad engine, fifty horsepower and greater, and that is not a motor vehicle or a vehicle used solely for competition, which shall include, but not be limited to, excavators, backhoes, cranes, compressors, generators, bulldozers and similar equipment; non-road vehicles do not include locomotives or marine vessels.

Prime Contractor means any person or business entity that enters into a public works contract with Cook County.

Public Works Contract means a contract, budgeted at $2,000,000 or more, with a County agency for a construction program or project bid by Cook County involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; a contract with a County agency for the preparation for any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge; or a contract with a County agency for any final work involved in the completion of any construction program or project involving the construction, demolition, restoration, rehabilitation, repair, renovation, or abatement of any building, structure, tunnel, excavation, roadway, park or bridge.

Stationary Generators means a non-mobile machine that uses diesel fuel to produce electrical energy.

Subcontractor means any person or business entity that enters into a contract with a Prime Contractor as defined herein to perform work on a public works contract with Cook County.

Ultra low sulfur diesel fuel means diesel fuel that has a sulfur content of no more than fifteen parts per million.

US EPA means the United States Environmental Protection Agency.

Verified diesel emission control device means:

a) an emission control device or strategy that has been verified to achieve a specified diesel PM reduction by US EPA or CARB; or

b) replacement or repowering with an engine that is certified to specific PM emissions performance by USE PA or CARB.

Sec. 30-952. Emission reduction.

a) Immediately after the effective date of this ordinance, any solicitation for a public works contract and any contract entered into as a result of such solicitation shall include a specification that all contractors in the performance of such contract shall use Ultra Low Sulfur Diesel fuel for diesel motor vehicles, nonroad vehicles, and stationary generators used in the performance of the contract.

b) Beginning January 1, 2 014, for Prime Contractors, and beginning January 1, 2016 for Subcontractors, any solicitation for a public works contract and any contract entered into as a result of such solicitation shall include a specification that a Prime Contractor and all

Subcontractors in the performance of such contract shall not operate any heavy-duty diesel vehicle in the performance of a public works contract unless that vehicle has installed Level 3 Controls and unless such controls are properly maintained and operating (as provided by regulations promulgated pursuant to this act). Except that, upon provision by the Prime Contractor or Subcontractors to the agency of appropriate and sufficient documentary evidence:

(1) Subsection (b) shall not apply to any heavy-duty diesel vehicle on the construction site working three days or less over the life of the project.

(2) Subsection (b) shall not apply to any heavy-duty diesel vehicle with respect to which the Department makes a written finding that such vehicle cannot be retrofit with Level 3 Controls, in which case such fleet owner or operator shall install Level 2 Controls that are available and appropriate for such vehicle as determined by the Department. If the Department makes a written finding that any such vehicle cannot be retrofit with Level 2 controls, said vehicle shall be retrofit with Level 1 Controls that are available and appropriate for such vehicle as determined by the Department.

(3) Any heavy-duty diesel vehicle that has operational Level 2 Controls installed prior to the effective date of this act shall have an additional one year to meet the requirements of Subsection (b).

c) Within two years after the effective date of this ordinance, any solicitation for a public works contract and any contract entered into as a result of such solicitation shall include a specification that all contractors in the performance of such contract shall not operate any diesel nonroad vehicle in the performance of a public works contract unless that vehicle has installed Level 2 Controls and unless such controls are properly maintained and operating (as provided by regulations promulgated pursuant to this act). Except that, upon provision by the contract or to the agency of appropriate and sufficient documentary evidence:

(1) Subsection (c) shall not apply to any diesel nonroad vehicle on the construction site working three days or less over the life of the project.

(2) Subsection (c) shall not apply to any diesel nonroad vehicle with respect to which the Department makes a written finding that such vehicle cannot be retrofit with Level 2 Controls, in which case such fleet owner or operator shall install Level 1 Controls that are available and appropriate for such vehicle as determined by the Department.

(3) Any diesel nonroad vehicle that has operational Level 1 Controls installed prior to the effective date of this act shall have an additional one year to meet the requirements of Subsection (c).

d) Beginning January 1, 2014, for Prime Contractors, and beginning January 1, 2016 for Subcontractors, any solicitation for a public works contract and any contract entered into as a result of such solicitation shall include a specification that a Prime Contractor and all Subcontractors in the performance of such contract shall not operate any diesel nonroad vehicle in the performance of a public works contract unless that vehicle has installed Level 3 Controls and unless such controls are properly maintained and operating (as provided by regulations promulgated pursuant to this act). Except that, upon provision by the Prime Contractor or Subcontractors to the agency of appropriate and sufficient documentary evidence:

(1) Subsection (d) shall not apply to any diesel nonroad vehicle on the construction site working three days or less over the life of the project.

(2) Subsection (d) shall not apply to any diesel nonroad vehicle with respect to which the Department makes a written finding that such vehicle cannot be retrofit with Level 3

Controls, in which case such fleet owner or operator shall install Level 2 Controls that are available and appropriate for such vehicle as determined by the Department.

(3) Any diesel nonroad vehicle that has operational Level 2 Controls installed prior to the effective date of this act shall have an additional one year to meet the requirements of Subsection (d).

Sec. 30-953. Costs.

All costs associated with meeting these requirements are incidental to the overall contract. No additional time or monies will be granted to the Prime Contractor for compliance with these requirements and any associated regulations.

Sec. 30-954. Compliance.

a) Thirty days before beginning work, the Prime Contractor shall submit to the Department for approval a list of all heavy-duty diesel vehicles, nonroad vehicles, and stationary generators to be used on the project. The list shall include the following:

(1) Prime Contractor and Subcontractor name and address, plus contact person responsible for the vehicles or equipment.

(2) Equipment type, manufacturer, engine model year, engine certification (Tier rating), ECM calibration, horsepower, plate, serial number, and expected fuel usage and/or hours of operation.

(3) For the pollution control technology installed: technology type, serial number, make, model, manufacturer, EPA/CARB verification number/level, and installation date.

b) If the Prime Contractor subsequently needs to bring on site equipment not on the list, the Prime Contractor shall submit the request in writing for prior approval. Additional equipment shall comply with all contract conditions.

c) During periods of inactivity, idling of diesel on road motor vehicles and nonroad vehicles shall be minimized and shall not exceed the time allowed under state and local laws.

d) Any public works contract shall provide for enforcement of the contract provisions required by Section 3 and penalties for noncompliance of such provisions.

Sec. 30-955. Enforcement.

a) Any solicitation for a public works contract subject to the provisions of this section and any contract entered into as a result of such solicitation shall include provisions authorizing independent monitoring and inspection of the Prime Contractor and Subcontractor's compliance with the requirements of this section and requiring that the Prime Contractor and Subcontractor comply with this section. The Prime Contractor shall be liable for a fee of $200 for the review of Prime Contractor and Subcontractor's compliance with the provisions of this section, and the County may withhold and deduct the fee from monies otherwise due the Prime Contractor.

b) All vehicles and equipment to which these requirements are applicable will be subject to random inspections to ensure full compliance with these requirements. If any equipment is found to be non-compliant, the Prime Contractor, Subcontractor or Supplier must remove or retrofit this equipment or vehicle within 24 hours or be subject to liquidated damages pursuant to subdivision (c) of this section until that piece of equipment or vehicle is removed from Project.

c) In the event of a violation of any provision of this section, except as provided, in subdivision (d) of this section, liquidated damages shall be assessed against the Prime Contractor in the amount of $5,000 for each violation (with each piece of noncomplying equipment and each day of noncompliance being a separate violation, not to exceed a total of $50,000 for any one piece of equipment). Said liquidated damages are not imposed as a penalty but as an estimate of the damages that the County will sustain from delay in completion of the work, as well as resultant damages to public health of its citizens, which damages by their nature are not capable of precise proof. The County may withhold and deduct from monies otherwise due the Prime Contractor the amount of liquidated damages due the County.

d) No Prime Contractor or Subcontractor shall make a false statement or claim with respect to any matter material to compliance with the provisions of this section to the County. Any Prime Contractor or Subcontractor making such a false statement shall pay the County up to $10,000 for each such statement as liquidated damages pursuant to the provisions of subdivision (c) of this section.

e) Fees and liquidated damages paid to the County under this section shall be placed in the Cook County Environmental Management Fund.

Sec. 30-956. Regulations.

Within six months of the effective date of this act, the Department shall, after written notice and public hearing, promulgate regulations implementing the provisions of this act.

Effective date: This Ordinance shall take effect upon adoption.

Approved and adopted this 19th day of May 2009.

TODD H. STROGER, President

Cook County Board of Commissioners

Attest: DAVID ORR, County Clerk.

SC-19 PROCESSING OF EXTRA WORK PAYMENT REQUESTS

Contractor's payment requests for Extra Work as identified in Article 104.02 of the Standard Specifications and the Special Provision for Contract Extra Work shall be processed in accordance with Article 109.04 of the Standard Specifications and the following additional procedures:

1) Contractor shall invoice the County for such Extra Work in accordance with the lump sum price, unit price, or force account as agreed to by the Engineer and Contractor.

2) Force account billing for equipment expense shall follow the applicable volume of the Equipment Watch Rental Rate Blue Book (Blue Book). Determination of equipment rates shall follow the IDOT Construction Memorandum 08-09. Also, a copy of the Blue Book calculation for each piece of equipment shall be included with the force account billing.

3) Contractor shall submit invoice for such Extra Work after the Extra Work has been fully completed by Contractor within sixty (60) days of completion of the work.

4) Within sixty (60) days after receipt of the invoice, the Engineer will review the Contractor's invoice and determine whether the invoice complies with the above. If the Engineer disapproves the invoice, the

Engineer shall give Contractor notice of the reasons for such disapproval and the Contractor shall resubmit a corrected invoice for the Engineer's review. The County shall have an additional thirty (30) days to review and determine whether that the corrected invoice complies with the above.

5) Once the Engineer determines that the invoice complies with the above, the Engineer shall present a recommendation for change in plan for the specific items of extra work. The Superintendent shall execute a change order for the specific items of extra work and submit such change order to the Cook County Chief Procurement Officer, or where appropriate, to the County Board for approval.

6) Within thirty (30) days of the Board's or the Cook County Chief Procurement Officer's approval of the change order, payment shall be reflected under the specific items of extra work completed by the Contractor and the corresponding amount shall be deleted from the Contract Extra Work item.

SC-20 PREVAILING WAGE

Not less than the prevailing rate of wages, as found by the Board of Commissioners of Cook County or the Department of Labor, State of Illinois, or determined by the court on review, shall be paid to all laborers, workmen, and mechanics performing work under this contract. The Contractor shall pay to laborers, workmen, and mechanics engaged in the performance of the work specified in this contract not less than the prevailing rate of wages as ascertained in Cook County and as set forth in the compilation of the wage rates per hour for Building Trades in Chicago and Cook County by the Chicago and Cook County Building and Construction Trades Council and the same as the general prevailing rate of hourly wages as determined by the Board of County Commissioners for the County of Cook, in accordance with the provisions of an Act of the General Assembly of the State of Illinois entitled "An Act Regulating Wages of Laborers, Mechanics and other Workmen employed in any Public Works by the State, For a list of the currently available prevailing wages, see Pages SC-33 through SC-40.

County and City or any Public Body or any Political Subdivision or by anyone under contract for Public Works, approved June 26, 1941, and as amended August 8, 1961." The compilation of the said general prevailing rate of hourly wages is on file in the Office of the County Clerk for the County of Cook and the Superintendent of Highways, Cook County, Chicago, Illinois. The Contractor and each Sub-Contractor shall keep an accurate record showing the names and occupations of all laborers, workers, and mechanics employed by them on this contract, and also showing the actual hourly wages paid to each of such persons. The submission by the Contractor and each Sub-Contractor of payrolls, or copies thereof, is not required. However, the Contractor and each Sub-Contractor shall preserve their weekly payroll records for a period of three (3) years from the date of completion of this contract.

Cook County Prevailing Wage for August 2013

(See explanation of column headings at bottom of wages)

Trade Name	RG	TYP	C	Base	FRMAN	M-F>8	OSA	OSH	H/W	Pensn	Vac	Trng
ASBESTOS ABT-GEN		ALL		37.100	37.600	1.5	1.5	2.0	13.38	9.520	0.000	0.500
ASBESTOS ABT-MEC		BLD		35.100	37.600	1.5	1.5	2.0	11.17	10.76	0.000	0.720
BOILERMAKER		BLD		43.450	47.360	2.0	2.0	2.0	6.970	14.66	0.000	0.350
BRICK MASON		BLD		41.580	45.740	1.5	1.5	2.0	9.700	12.80	0.000	1.040
CARPENTER		ALL		42.520	44.520	1.5	1.5	2.0	13.29	12.75	0.000	0.630
CEMENT MASON		ALL		42.350	44.350	2.0	1.5	2.0	11.21	11.40	0.000	0.320
CERAMIC TILE FNSHER		BLD		34.810	0.000	2.0	1.5	2.0	10.20	7.830	0.000	0.640
COMM. ELECT.		BLD		38.000	40.800	1.5	1.5	2.0	8.420	11.30	1.100	0.700
ELECTRIC PWR EQMT OP		ALL		44.850	49.850	1.5	1.5	2.0	10.63	14.23	0.000	0.450
ELECTRIC PWR GRNDMAN		ALL		34.980	49.850	1.5	1.5	2.0	8.290	11.10	0.000	0.350
ELECTRIC PWR LINEMAN		ALL		44.850	49.850	1.5	1.5	2.0	10.63	14.23	0.000	0.450
ELECTRICIAN		ALL		43.000	46.000	1.5	1.5	2.0	12.83	14.27	0.000	0.750
ELEVATOR CONSTRUCTOR		BLD		49.080	55.215	2.0	2.0	2.0	11.88	12.71	3.930	0.600
FENCE ERECTOR		ALL		34.840	36.840	1.5	1.5	2.0	12.86	10.67	0.000	0.300
GLAZIER		BLD		39.500	41.000	1.5	2.0	2.0	11.99	14.30	0.000	0.840

SPECIAL CONDITIONS

HT/FROST INSULATOR		BLD		46.950	49.450	1.5	1.5	2.0	11.17	11.96	0.000	0.720
IRON WORKER		ALL		42.070	44.070	2.0	2.0	2.0	13.45	19.59	0.000	0.350
LABORER		ALL		37.000	37.750	1.5	1.5	2.0	13.38	9.520	0.000	0.500
LATHER		ALL		42.520	44.520	1.5	1.5	2.0	13.29	12.75	0.000	0.630
MACHINIST		BLD		43.920	46.420	1.5	1.5	2.0	6.760	8.950	1.850	0.000
MARBLE FINISHERS		ALL		30.520	0.000	1.5	1.5	2.0	9.700	12.55	0.000	0.590
MARBLE MASON		BLD		40.780	44.860	1.5	1.5	2.0	9.700	12.71	0.000	0.740
MATERIAL TESTER I		ALL		27.000	0.000	1.5	1.5	2.0	13.38	9.520	0.000	0.500
MATERIALS TESTER II		ALL		32.000	0.000	1.5	1.5	2.0	13.38	9.520	0.000	0.500
MILLWRIGHT		ALL		42.520	44.520	1.5	1.5	2.0	13.29	12.75	0.000	0.630
OPERATING ENGINEER		BLD	1	46.100	50.100	2.0	2.0	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		BLD	2	44.800	50.100	2.0	2.0	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		BLD	3	42.250	50.100	2.0	2.0	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		BLD	4	40.500	50.100	2.0	2.0	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		BLD	5	49.850	50.100	2.0	2.0	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		BLD	6	47.100	50.100	2.0	2.0	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		BLD	7	49.100	50.100	2.0	2.0	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		FLT	1	51.300	51.300	1.5	1.5	2.0	15.70	10.55	1.900	1.250
OPERATING ENGINEER		FLT	2	49.800	51.300	1.5	1.5	2.0	15.70	10.55	1.900	1.250
OPERATING ENGINEER		FLT	3	44.350	51.300	1.5	1.5	2.0	15.70	10.55	1.900	1.250
OPERATING ENGINEER		FLT	4	36.850	51.300	1.5	1.5	2.0	15.70	10.55	1.900	1.250
OPERATING ENGINEER		FLT	5	52.800	51.300	1.5	1.5	2.0	15.70	10.55	1.900	1.250
OPERATING ENGINEER		HWY	1	44.300	48.300	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		HWY	2	43.750	48.300	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		HWY	3	41.700	48.300	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		HWY	4	40.300	48.300	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		HWY	5	39.100	48.300	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		HWY	6	47.300	48.300	1.5	1.5	2.0	16.60	11.05	1.900	1.250
OPERATING ENGINEER		HWY	7	45.300	48.300	1.5	1.5	2.0	16.60	11.05	1.900	1.250
ORNAMNTL IRON WORKER		ALL		42.900	45.400	2.0	2.0	2.0	13.11	16.40	0.000	0.600
PAINTER		ALL		40.000	44.750	1.5	1.5	1.5	9.750	11.10	0.000	0.770
PAINTER SIGNS		BLD		33.920	38.090	1.5	1.5	1.5	2.600	2.710	0.000	0.000
PILEDRIVER		ALL		42.520	44.520	1.5	1.5	2.0	13.29	12.75	0.000	0.630
PIPEFITTER		BLD		46.000	49.000	1.5	1.5	2.0	9.000	15.85	0.000	1.680
PLASTERER		BLD		40.250	42.670	1.5	1.5	2.0	10.85	10.94	0.000	0.550
PLUMBER		BLD		45.000	47.000	1.5	1.5	2.0	12.53	10.06	0.000	0.880
ROOFER		BLD		38.950	41.950	1.5	1.5	2.0	8.280	9.190	0.000	0.430
SHEETMETAL WORKER		BLD		41.210	44.510	1.5	1.5	2.0	10.48	19.41	0.000	0.660
SIGN HANGER		BLD		30.210	30.710	1.5	1.5	2.0	4.850	3.030	0.000	0.000
SPRINKLER FITTER		BLD		49.200	51.200	1.5	1.5	2.0	10.75	8.350	0.000	0.450
STEEL ERECTOR		ALL		42.070	44.070	2.0	2.0	2.0	13.45	19.59	0.000	0.350
STONE MASON		BLD		41.580	45.740	1.5	1.5	2.0	9.700	12.80	0.000	1.040
TERRAZZO FINISHER		BLD		36.040	0.000	1.5	1.5	2.0	10.20	9.900	0.000	0.540
TERRAZZO MASON		BLD		39.880	42.880	1.5	1.5	2.0	10.20	11.25	0.000	0.700
TILE MASON		BLD		41.840	45.840	2.0	1.5	2.0	10.20	9.560	0.000	0.880
TRAFFIC SAFETY WRKR		HWY		28.250	29.850	1.5	1.5	2.0	4.896	4.175	0.000	0.000
TRUCK DRIVER	E	ALL	1	33.850	34.500	1.5	1.5	2.0	8.150	8.500	0.000	0.150
TRUCK DRIVER	E	ALL	2	34.100	34.500	1.5	1.5	2.0	8.150	8.500	0.000	0.150
TRUCK DRIVER	E	ALL	3	34.300	34.500	1.5	1.5	2.0	8.150	8.500	0.000	0.150
TRUCK DRIVER	E	ALL	4	34.500	34.500	1.5	1.5	2.0	8.150	8.500	0.000	0.150
TRUCK DRIVER	W	ALL	1	32.550	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TRUCK DRIVER	W	ALL	2	32.700	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TRUCK DRIVER	W	ALL	3	32.900	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TRUCK DRIVER	W	ALL	4	33.100	33.100	1.5	1.5	2.0	6.500	4.350	0.000	0.000
TUCKPOINTER		BLD		40.950	41.950	1.5	1.5	2.0	8.180	10.82	0.000	0.940

Legend: RG (Region)
TYP (Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers)
C (Class)
Base (Base Wage Rate)
FRMAN (Foreman Rate)
M-F>8 (OT required for any hour greater than 8 worked each day, Mon through Fri.
OSA (Overtime (OT) is required for every hour worked on Saturday)
OSH (Overtime is required for every hour worked on Sunday and Holidays)

SPECIAL CONDITIONS

H/W (Health & Welfare Insurance)
Pensn (Pension)
Vac (Vacation)
Trng (Training)

Explanations

COOK 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.

TRUCK DRIVERS (WEST) - That part of the county West of Barrington Road.

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 ELECTRICIAN

Installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound vision production and reproduction, telephone and telephone interconnect, facsimile, data apparatus, coaxial, fibre optic and wireless equipment, appliances and systems used for the transmission and reception of signals of any nature, business, domestic, commercial, education, entertainment, and residential purposes, including but not limited to, communication and telephone, electronic and sound equipment, fibre optic and data communication systems, and the performance of any task directly related to such installation or service whether at new or existing sites, such tasks to include the placing of wire and cable and electrical power conduit or other raceway work within the equipment room and pulling wire and/or cable through conduit and the installation of any incidental conduit, such that the employees covered hereby can complete any job in full.

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.

SPECIAL CONDITIONS

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.

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.

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 - EAST & WEST

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

SPECIAL CONDITIONS

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.

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.

MINORITY AND WOMEN BUSINESS ENTERPRISES
COOK COUNTY ORDINANCE CHAPTER 34, DIVISION 8, SECTION 34-260 to SECTION 34-300

I. POLICY AND GOALS

A. It is the policy of the County of Cook to prevent discrimination in the award of or participation in County contracts and to eliminate arbitrary barriers for participation, as both prime and sub-contractors, in such contracts by local businesses certified as Minority Business Enterprises (MBE) and Women owned Business Enterprises (WBE). In furtherance of this policy, the Cook County Board of Commissioners has adopted a Minority and Women owned Business Enterprise Ordinance (the "Ordinance") which establishes goals as outlined below:

Contract Type	Goals	
	MBE	WBE
Goods and Services	25%	10%
Construction	24%	10%
Professional Services	35% Overall	

B. **The County may set contract specific goals for each contract, based on the commodities or services specified in this bid document. The MBE/WBE percentages required for this contract are 24% MBE and 10% WBE.** A Bid or Quotation shall be rejected if the County determines that a Bid or Quotation fails to comply with this provision, including but not limited to, commitments to achieve for this contract, the MBE/ WBE goals of the contract amount or to include a Petition for Reduction/Waiver documenting why the goals are not attainable despite the contractor's Good Faith Efforts. A Bid or Quotation may be rejected and a new Bid or Quotation may be solicited if the public interest is served thereby. Unless otherwise specified in the Bid or Quotation Documents, for purposes of this provision, the contract amount is the amount that has been entered on the Proposal page of the Bid or Quotation Documents.

C. Except to the extent that a Bid or Quotation includes a Reduction/Waiver request, the contract MBE and WBE participation goals may be achieved by the Bid or Quotation entities' status as a MBE or WBE; by entering into a joint venture with one or more MBEs and/or WBEs; by subcontracting a portion of the work to one or more MBEs and WBEs; by establishing and carrying out a mentor/protégé agreement; by the Indirect Participation of one or more MBEs and WBEs used by the entity submitting a Bid or Quotation in other aspects of its business; or by any combination of the foregoing so long as the Utilization Plan evidences a commitment to the MBE and WBE contract goals set forth in (B) above.

D. The same Business Enterprise, whether as a contractor, subcontractor or supplier, cannot be utilized as both a MBE and a WBE on the same contract.

E. To the extent that the Ordinance does not apply to this Bid or Quotation, unless specifically waived in the Bid or Quotation Documents, this provision and the wording of the Ordinance shall apply. If there is a conflict between this provision and the Ordinance or the wording of the Ordinance, the Ordinance or its wording controls.

F. A Contractor's failure to carry out its commitments in the course of the Contract's performance shall constitute a material breach of the Contract and if such breach is not appropriately cured, may result in the termination of the Contract or such remedy authorized by the Ordinance as the County deems appropriate.

MINORITY AND WOMEN BUSINESS ENTERPRISES
COOK COUNTY ORDINANCE CHAPTER 34, DIVISION 8, SECTION 34-260 to SECTION 34-300

II. REQUIRED BID OR QUOTATION SUBMITTALS

To be considered responsive, a Bid or Quotation shall meet the MBE and WBE goals by submitting a Utilization Plan with the Bid or Quotation, which shall be (1) supported by Letters of Intent from the MBEs and WBEs together with the MBEs/WBEs **current** Letters of Certification, and/or (2) include a written Petition for Reduction/Waiver with the Bid or Quotation supported by documentation of Good Faith Efforts to meet the goals. Failure to submit the documents set forth in (A) and (B) of this Section II in accordance with these guidelines will cause the Bid or Quotation to be considered non-responsive and shall be cause to reject the Bid or Quotation.

A. MBE/WBE Utilization Plan

Each Bid or Quotation shall include with the Bid or Quotation a complete Utilization Plan. The Utilization Plan shall list the names, mail and email addresses, telephone number and contact persons of businesses intended to be used as MBEs and WBEs on the Contract. If the entity submitting a Bid or Quotation, or any of its subcontractors, suppliers or consultants, are certified MBEs or WBEs they shall be identified as an MBE or WBE within the Utilization Plan.

1. Letter(s) of Intent

Except as set forth below, a Bid or Quotation shall include with its Utilization Plan, Letter(s) of Intent executed by each MBE and WBE included in the Utilization Plan and by the entity submitting the Bid or Quotation, which sets forth that each MBE and WBE intends to perform as a subcontractor, supplier, joint venture partner and/or consultant on the contract. The Letters of Intent must accurately detail the work to be performed by the MBE or WBE firm and the agreed rates and/or prices to be paid. Failure to submit all Letter(s) of Intent as required may result in the Contract Compliance Director's determination that a Bid or Quotation is not responsive and shall be cause to reject the Bid or Quotation.

All commitments made by a Bid or Quotation in its Utilization Plan must conform to those included in the submitted Letter(s) of Intent. The Contract Compliance Administrator reserves the right to request supplemental information regarding the Letter(s) of Intent submitted with a Bid or Quotation and such information shall be furnished. (Reference Economic Disclosure Section for a format sample of a Letter of Intent)

2. Letter(s) of Certification

Only **current** Letters of Certification from one of the following entities may be accepted as certification of MBE/WBE status:

- County of Cook
- City of Chicago (NOTE: firms certified by the City of Chicago in any area other than Construction must complete and submit a Personal Net Worth/Size Standard Affidavit. This form can be downloaded online at www.cookcountyil.gov/contractcompliance)

or any other governmental body or agency approved by the Contract Compliance Director as applying certification standards substantially similar to those applied by the County of Cook may also be accepted.

The Contract Compliance Director retains the right to reject the certification of any MBE or WBE on the ground that it does not meet the County's definition of a MBE or WBE.

3. Joint Venture Affidavit

In the event a Bid or Quotation achieves MBE and/or WBE participation by entering into a Joint Venture, the Bid or Quotation shall include the required Joint Venture Affidavit which can be downloaded online at www.cookcountyil.gov/contractcompliance). Such Joint Venture Affidavit shall be submitted with the Bid or Quotation along with **current** Letter(s) of Certification.

B. Reduction/Waiver Petition

In the event a Bid or Quotation is unable to meet the applicable contract MBE and WBE participation goals, the Bid or Quotation must include a Petition for Reduction/Waiver and submit the Petition with its Bid or Quotation. The Petition for Reduction/Waiver shall be supported with evidence and sufficient documentation to demonstrate the Bid's or Quotation's Good Faith Efforts in attempting to achieve the applicable MBE and WBE goals. Failure to submit a Petition for Reduction of Waiver as required may result in the Contract Compliance Director's determination that a Bid or Quotation is not responsive and shall be cause to reject the Bid or Quotation.

III. REDUCTION/WAIVER OF MBE/MBE GOALS

A. Granting a Reduction/Waiver Request.

1. The determination of the adequacy of the Good Faith Efforts to utilize MBEs and WBEs in a Bid or Quotation will be evaluated on the basis of the actions in attempting to achieve MBE and WBE participation goals set forth in the Bid or Quotation. Examples of actions constituting Good Faith Efforts for a Bid or Quotation are set forth within the Ordinance and in the "Petition for Reduction/Waiver of MBE/WBE Participation Goals" contained in the Bid or Quotation Documents.

2. The Contract Compliance Director may grant the Petition for Reduction/Waiver based upon the following criteria: (a) sufficient qualified MBEs and WBEs capable of providing the goods or services required by the contract are unavailable despite the good faith efforts of the contractor; (b) the specifications and the reasonable and necessary requirements for performing the contract make it impossible or economically infeasible to divide the contract into sufficiently small tasks or quantities to enable the contractor to utilize MBEs and WBEs in accordance with the applicable goals; (c) the price(s) required by any potential MBE or WBE is more that 10% above competitive levels; and (d) any other factor determined to be relevant by the Contract Compliance Director.

B. Denying a Reduction/Waiver Request.

1. If the Contract Compliance Director determines that a Bid or Quotation has not demonstrated adequate Good Faith Efforts to meet the applicable contract MBE and WBE goals, the Contract Compliance Director may deny a Petition for Reduction/Waiver and declare the Bid or Quotation non-responsive and recommend rejection of the Bid or Quotation.

2. Failure to undertake and/or to document adequate Good Faith Efforts shall be cause to deny a Petition for Reduction/Waiver. Determination of the adequacy of a Bid's or Quotation's Good Faith Effort will be evaluated on the basis of the Bid's or Quotation's actions as of the date of the Bid or Quotation opening.

MINORITY AND WOMEN BUSINESS ENTERPRISES
COOK COUNTY ORDINANCE CHAPTER 34, DIVISION 8, SECTION 34-260 to SECTION 34-300

IV. CHANGES IN CONTRACTOR'S UTILIZATION PLAN

A. Contractor, during its performance of the Contract, may not change the MBE or WBE commitments specified in its Utilization Plan, including but not limited to, terminating a MBE or WBE contract, reducing the scope of the work to be performed by a MBE/WBE, or decreasing the price to a MBE/WBE, except as otherwise provided by the Ordinance.

B. Where an enterprise under the Contact was previously considered to be a MBE or WBE but is later found not to be, or work is found not to be creditable toward the MBE or WBE goals as stated in the Utilization Plan, the Contractor shall seek to discharge the disqualified enterprise, upon proper written notification to the Contract Compliance Administrator, and make every effort to identify and engage a qualified MBE or WBE as its replacement. Failure to obtain a MBE or WBE replacement within 30 working days of the Contract Compliance Administrator's written approval of the removal of a MBE or WBE may result in the termination of the contract or the imposition of such remedy authorized by the Ordinance, unless a written Petition for Reduction/Waiver is granted to Contractor allowing Contractor to award the work to a non-MBE or WBE.

V. NON-COMPLIANCE

If the County determines that the Contractor has failed to comply with its contractual commitments or any portion of the Ordinance or this provision, the Contract Compliance Administrator will notify the Contractor of such noncompliance and may take any and all appropriate actions as set forth within the Ordinance.

VI. REPORTING/RECORD-KEEPING REQUIREMENTS

The Contractor is required to comply with the reporting and record-keeping requirements as set forth in the Ordinance and as established by the Contract Compliance Administrator. Upon award of a Contract, Contractor is responsible for acquiring all necessary County reporting and record-keeping forms which will be made available in the Office of Contract Compliance.

VII. EQUAL EMPLOYMENT OPPORTUNITY

Compliance with MBE and WBE requirements will not diminish or supplant Equal Employment Opportunity and Civil Rights provisions as required by law as they relate to contractor and subcontractor obligations.

Any questions regarding this section should be directed to:

Office of Contract Compliance
118 North Clark Street, Room 1020
Chicago, Illinois 60602
(312) 603-5502

COUNTY OF COOK

CHICAGO, ILLINOIS

PROPOSAL

For a County Highway Improvement in the County of Cook, State of Illinois,

known as Electrical and Mechanical Item Maintenance

Route Various Locations *Section* 14-8EMIM-42-GM

From Various Locations *To* _____

LOCATION OF IMPROVEMENT

The proposed improvement is part of the public highway system in the County of Cook, State of Illinois, located by section and route before mentioned, and is indicated on the map showing the County Highway System on file in the office of the County Clerk and also in the office of the Illinois Department of Transportation, Division of Highways, Springfield, Illinois.

Various locations throughout Cook County

DESCRIPTION OF IMPROVEMENT

The contract is for maintenance of (1) Traffic Signal Installations, (2) Street and Roadway Lighting Systems, (3) Navigation Lighting Systems, Bridge Cathodic Protection Systems, (4) Storm Water Pump Station Systems, and (5) Maintenance Facilities Electrical Systems and their appurtenances, located in Cook County.

The Contractor, for specified unit prices listed under schedule of prices, shall: (1) furnish all labor and provide materials to maintain the respective installations and systems, in first class working order and operating condition at all times, (2) make permanent repairs to damaged equipment, (3) clean, repair, perform preventative maintenance, and overhaul specified equipment at stated intervals of time, (4) provide the necessary transportation for workmen, material, and equipment used to execute the terms of the Contract, (5) PROVIDE CONTINUIOUS MAINTENANCE AND REPAIR SERVICE, INCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS to correct any malfunction of equipment or effect any temporary emergency repairs to missing, defective, displaced or damaged equipment resulting from any cause in the shortest possible time, (6) patrol and inspect the respective systems for lamps and other failures and non-operative equipment, shall replace electric lamps in all systems as required, and (7) execute Specialty Items for unit prices as directed by the Engineer, and perform all activities required herein.

CONTRACT
(SECTION 10)

That for and in consideration of the payments to be made by the said County as hereinafter provided, the said Contractor hereby covenants and agrees with the said County to do all the work and furnish all the labor, materials, machinery, apparatus, implements, tools, and other things necessary for the improvement of the public highway known as Cook County Contract # 1328-12938, **Electrical and Mechanical Item Maintenance** In the various locations in and around County of Cook, and State of Illinois, said section known or to be known as Section: **14-8EMIM-42-GM** at his own cost and expense, free from all liens, claims, and charges whatsoever, and in a good substantial, thorough and workmanlike manner, and in strict and full accordance, conformity and compliance with all the terms and conditions of this contract and the requirements under it of the Superintendent of Department of Transportation and Highways of Cook County, Illinois, and under the direction and to the satisfaction of the said Superintendent of Department of Transportation and Highways.

It is expressly understood and agreed by and between said County and said Contractor that the Bid hereto attached and Notice to Contractors, Specifications, Plans, Maps, Blue Prints, and Drawings, on file in the Office of the Superintendent of Department of Transportation and Highways of Cook County, Illinois, and in the office of the Department of Transportation, Springfield, Illinois, copies of which are hereto attached, hereby are included in and made a part of this contract.

The Contractor shall not begin operations until the contract has been approved by the Board of Cook County Commissioners and fully executed by the County. Subsequent to contract execution, the Contractor will be notified by a notice-to-proceed letter from the Superintendent of Cook County Department of Transportation of Highways to commence operations on a specified date. The undersigned agrees to start operations on the date so specified and to complete the proposed improvement in full compliance with the contract.

The Superintendent of Cook County Department of Transportation and Highways shall at the end of each month make an estimate in writing, such as in his opinion shall be just and fair, of the amount of materials furnished, delivered, properly set in place and incorporated into the herein described improvement, and the amount of work properly done by said Contractor in the performance of the work hereunder and the value thereof under and according to the terms of this contract.

The first estimate shall cover the amount of work performed and the value of the materials properly set in place and incorporated into the herein described improvement since said Contractor commenced the performance of this contract, and each subsequent estimate, except the final one, shall be of the amount of work performed and the value of the materials properly set in place and incorporated into said improvement since the last preceding estimate was made.

Such estimates of amount and quality shall not be required to be made by strict measurement, but shall be sufficient if they are made approximately only, and each such estimate shall be submitted to the Board of County Commissioners of Cook County and upon approval by said Board of Commissioners said County shall pay to said Contractor ninety per cent (90%) of the amount stated in said estimates, if applicable.

At least one week before each payment falls due, said Contractor shall submit to said Superintendent of Department of Transportation and Highways requisition for such payment, and, shall, if required, submit therewith an itemized statement of the quantities and cost and proportionate profit of work performed to the termination of the period to be covered by such payment, together with an affidavit setting forth that the items in said statement are true and just, that the services were rendered, that the articles or materials were furnished, that the sum claimed is due and unpaid, after allowing all just credits, that all labor, materials, apparatus, fixtures, and machinery furnished or used have been paid for, and if not, stating those not paid for, giving the amount due, to whom due, and for what due, attaching to said affidavit waivers of lien from those mentioned in said exceptions as having unpaid claims, and such affidavit shall contain such other matter as may be deemed necessary by the said Superintendent of Department of Transportation and Highways to protect said County in its payments, and any such statement shall not be binding upon said Superintendent of Department of Transportation and Highways.

It is expressly agreed by the parties hereto that in the event any defects or imperfections in the materials or workmanship to be furnished by the Contractor herein appear within the period of one year from the date of completion of all the work mentioned herein and the acceptance thereof by said County, the Contractor will, upon notice from the said Superintendent of Department of Transportation and Highways, (which notice may be given by letter mailed to said Contractor to the business address of the Contractor shown in the Proposal), repair and make good at his own cost any such defects or imperfections and replace any defective or imperfect materials or workmanship with other materials or workmanship satisfactory to said Superintendent of Department of Transportation and Highways, and furnish all such new materials and labor as may be necessary to do so; and in the event of the failure, refusal or delay of said Contractor to so make good, repair or replace said workmanship or materials, said County may do so or have same done by others, and said Contractor and the surety or sureties on his bond given for the faithful performance of this contract shall be liable to the County of Cook for all damages and expense occasioned by such failure, refusal or delay.

It is expressly and mutually covenanted and agreed that all of the Plans and Specifications hereinbefore mentioned and this Instrument together are the documents forming the contract between said County and said Contractor and are correlative, and whatever may be provided for and required by one of said documents shall be as binding as if provided for and required by two or more of them.

The Contractor expressly agrees that not less than the general prevailing rate of wages as found by The Board of County Commissioners for the County of Cook in accordance with the provisions of "An Act regulating wages of laborers, mechanics and other workmen employed under contracts for public works", Approved June 26, 1941, as amended, or such wage rates as may be determined by the court on

appeal as in said Act provided, shall be paid to all laborers, workmen and mechanics performing work under this contract. The prevailing wage rates as found by the said Board of County Commissioners are on file in the office of the County Clerk for the County of Cook.

It is expressly understood and agreed that if the said Contractor shall fail, refuse or neglect to comply with said contract and Plans and Specifications or any provisions therein contained, or to proceed according to the terms of said contract and Plans and Specifications or any part thereof, in the manner and at the time as directed by the said Superintendent of Department of Transportation and Highways, then the said County shall have the right, and The Board of County Commissioners of Cook County is hereby given authority on behalf of the said County to declare this contract forfeited, and the said County may re-bid the whole or any part thereof upon such terms as it may see fit without prejudice to any of its rights herein.

It is expressly understood and agreed by the parties hereto that the Superintendent of Department of Transportation and Highways shall fix and determine the amount of damages to be paid to said County by the said Contractor by reason of the failure or refusal to perform this contract or comply with the provisions thereof as aforesaid, and the said Contractor hereby agrees to be held liable for the amount so fixed and determined and agrees to pay such amount; and the said County shall apply in payment of any such amount so fixed and determined any and all sums on hand or due and owing to said Contractor, and if there be not sufficient money on hand or due and owing to said Contractor to balance and pay said amount so fixed and determined, then, in such case, any amount remaining unpaid shall be a valid and subsisting claim against the said Contractor and the surety or sureties on his bond given for the faithful performance of this agreement.

The following completed documents are to be submitted <u>with the Bid</u>:

Economic Disclosure Statement (other than execution pages)	1 original
Execution Pages	6 originals
Joint Venture Forms, if applicable	1 original
Certification Concerning Labor Standards And Prevailing Wage Requirements	1 original
Subcontractors Certification Concerning Labor Standards and Prevailing Wage Requirements	1 original
IDOT Certificate of Eligibility	1 copy
IDOT Affidavit of Availability	1 copy
Responsible Bidder Requirement	1 original
Bidding Supplemental	1 original
Addendum Receipts Acknowledgment, if applicable	1 original
Schedule of Prices	1 original
Quick Payment Discounts	1 original
Bid Deposit Form	1 original
Proposal Bid Bond	1 original
Surety Statement of Qualifications	1 original

The following documents are to be subsequent to notice of acceptance <u>within fourteen (14) calendar days</u>:

Performance and Payment Bond	1 original
Insurance Requirements	1 original

Please forward documents due within fourteen (14) days of notice of acceptance to:

Cook County Department of Transportation and Highways
Contract Documents
69 West Washington Street
Suite 2400
Chicago, IL 60602

ECONOMIC DISCLOSURE STATEMENT
AND EXECUTION DOCUMENT
INDEX

Section	Description	Pages
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2	Letter of Intent	EDS 2
3	Petition for Reduction/Waiver of MBE/WBE Participation Goals	EDS 3
4	Certifications	EDS 4, 5
5	Economic and Other Disclosures, Affidavit of Child Support Obligations and Disclosure of Ownership Interest	EDS 6 – 12
6	Sole Proprietor Signature Page	EDS 13a/b/c
7	Partnership Signature Page	EDS 14/a/b/c
8	Limited Liability Corporation Signature Page	EDS 15a/b/c
9	Corporation Signature Page	EDS 16a/b/c
10	Cook County Signature Page	EDS 17

INSTRUCTIONS FOR COMPLETION OF ECONOMIC DISCLOSURE STATEMENT AND EXECUTION DOCUMENT

This Economic Disclosure Statement and Execution Document ("EDS") is to be completed and executed by every Bidder on a County contract, every party responding to a Request for Proposals or Request for Qualifications "(Proposer"), and others as required by the Chief Procurement Officer. If the Undersigned is awarded a contract pursuant to the procurement process for which this EDS was submitted (the "Contract"), this Economic Disclosure Statement and Execution Document shall stand as the Undersigned's execution of the Contract.

Definitions. Capitalized terms used in this EDS and not otherwise defined herein shall have the meanings given to such terms in the Instructions to Bidders, General Conditions, Request for Proposals, Request for Qualifications, or other documents, as applicable.

> ***"Affiliated Entity"*** means a person or entity that, directly or indirectly: controls the Bidder, is controlled by the Bidder, or is, with the Bidder, under common control of another person or entity. Indicia of control include, without limitation, interlocking management or ownership; identity of interests among family members; shared facilities and equipment; common use of employees; and organization of a business entity following the ineligibility of a business entity to do business with the County under the standards set forth in the Certifications included in this EDS, using substantially the same management, ownership or principals as the ineligible entity.
>
> ***"Bidder," "Proposer," "Undersigned,"*** or ***"Applicant,"*** is the person or entity executing this EDS. Upon award and execution of a Contract by the County, the Bidder, Proposer, Undersigned or Applicant, as the case may be, shall become the Contractor or Contracting Party.
>
> ***"Proposal,"*** for purposes of this EDS, is the Undersigned's complete response to an RFP/RFQ, or if no RFQ/RFP was issued by the County, the "Proposal" is such other proposal, quote or offer submitted by the Undersigned, and in any event a "Proposal" includes this EDS .
>
> ***"Code"*** means the Code of Ordinances, Cook County, Illinois available through the Cook County Clerk's Office website (http://www.cookctyclerk.com/sub/ordinances.asp). This page can also be accessed by going to www.cookctyclerk.com, clicking on the tab labeled "County Board Proceedings," and then clicking on the link to "Cook County Ordinances."
>
> ***"Contractor"*** or ***"Contracting Party"*** means the Bidder, Proposer or Applicant with whom the County has entered into a Contract.
>
> ***"EDS"*** means this complete Economic Disclosure Statement and Execution Document, including all sections listed in the Index and any attachments.
>
> ***"Lobby"*** or "lobbying" means to, for compensation, attempt to influence a County official or County employee with respect to any County matter.
>
> ***"Lobbyist"*** means any person or entity who lobbies.
>
> ***"Prohibited Acts"*** means any of the actions or occurrences which form the basis for disqualification under the Code, or under the Certifications hereinafter set forth.

Sections 1 through 3: MBE/WBE Documentation. Sections 1 and 2 must be completed in order to satisfy the requirements of the County's MBE/WBE Ordinance, as set forth in the Contract Documents, if applicable. If the Undersigned believes a waiver is appropriate and necessary, Section 3, the Petition for Waiver of MBE/WBE Participation must be completed.

Section 4: Certifications. Section 4 sets forth certifications that are required for contracting parties under the Code. Execution of this EDS constitutes a warranty that all the statements and certifications contained, and all the facts stated, in the Certifications are true, correct and complete as of the date of execution.

Section 5: Economic and Other Disclosures Statement. Section 5 is the County's required Economic and Other Disclosures Statement form. Execution of this EDS constitutes a warranty that all the information provided in the EDS is true, correct and complete as of the date of execution, and binds the Undersigned to the warranties, representations, agreements and acknowledgements contained therein.

INSTRUCTIONS FOR COMPLETION OF ECONOMIC DISCLOSURE STATEMENT AND EXECUTION DOCUMENT

Sections 6, 7, 8, 9: Execution Forms. The Bidder executes this EDS, and the Contract, by completing and signing three copies of the appropriate Signature Page. Section 6 is the form for a sole proprietor; Section 7 is the form for a partnership or joint venture; Section 8 is the form for a Limited Liability Corporation, and Section 9 is the form for a corporation. Proper execution requires ~~THREE~~ SIX **ORIGINALS**; therefore, the appropriate Signature Page must be filled in, three copies made, and all three copies must be properly signed, notarized and submitted. The forms may be printed and completed by typing or hand writing the information required.

Required Updates. The information provided in this EDS will be kept current. In the event of any change in any information provided, including but not limited to any change which would render inaccurate or incomplete any certification or statement made in this EDS, the Undersigned will supplement this EDS up to the time the County takes action, by filing an amended EDS or such other documentation as is requested.

Additional Information. The County's Governmental Ethics and Campaign Financing Ordinances, impose certain duties and obligations on persons or entities seeking County contracts, work, business, or transactions. For further information please contact the Director of Ethics at (312) 603-4304 (69 W. Washington St. Suite 3040, Chicago, IL 60602) or visit our web-site at www.cookcountygov.com and go to the Ethics Department link. The Bidder must comply fully with the applicable ordinances.

MBE/WBE UTILIZATION PLAN (SECTION 1)

BIDDER/PROPOSER HEREBY STATES that all MBE/WBE firms included in this Plan are certified MBEs/WBEs by at least one of the entities listed in the General Conditions.

I. **BIDDER/PROPOSER MBE/WBE STATUS:** (check the appropriate line)

____ Bidder/Proposer is a certified MBE or WBE firm. (If so, attach copy of appropriate Letter of Certification)

____ Bidder/Proposer is a Joint Venture and one or more Joint Venture partners are certified MBEs or WBEs. (If so, attach copies of Letter(s) of Certification, a copy of Joint Venture Agreement clearly describing the role of the MBE/WBE firm(s) and its ownership interest in the Joint Venture and a completed Joint Venture Affidavit – available from the Office of Contract Compliance)

X Bidder/Proposer is not a certified MBE or WBE firm, nor a Joint Venture with MBE/WBE partners, but will utilize MBE and WBE firms either directly or indirectly in the performance of the Contract. (If so, complete Sections II and III).

II. [X] **Direct Participation of MBE/WBE Firms** [ ] **Indirect Participation of MBE/WBE Firms**

Where goals have not been achieved through direct participation, Bidder/Proposer shall include documentation outlining efforts to achieve Direct Participation at the time of Bid/Proposal submission. Indirect Participation will only be considered after all efforts to achieve Direct Participation have been exhausted. Only after written documentation of Good Faith Efforts is received will Indirect Participation be considered.

MBEs/WBEs that will perform as subcontractors/suppliers/consultants include the following:

MBE/WBE Firm: City Lights, Ltd.

Address: 9993 Virginia Avenue, Chicago Ridge, IL 60415

E-mail: jackie@citylightsltd.com

Contact Person: Jacqueline Hoffman Phone: 773-626-9162

Dollar Amount Participation: $ $189,800.00

Percent Amount of Participation: 7.25 %

*Letter of Intent attached? Yes X No ____
*Letter of Certification attached? Yes X No ____

MBE/WBE Firm: Taylor Electric Company

Address: 7811 S. Stony Island Ave., Chicago, IL 60649

E-mail: kddinkins@taylorelectricco.com

Contact Person: Kendra Dinkins Phone: 773-346-5658

Dollar Amount Participation: $ 722,378.16

Percent Amount of Participetion: 27.6 %

*Letter of Intent attached? Yes X No ____
*Letter of Certification attached? Yes X No ____

Attach additional sheets as needed.

***Additionally, all Letters of Intent, Letters of Certification and documentation of Good Faith Efforts omitted from this bid/proposal <u>must</u> be submitted to the Office of Contract Compliance so as to assure receipt by the Contract Compliance Administrator not later than three (3) business days after the Bid Opening date.**

MBE/WBE UTILIZATION PLAN (SECTION 1)

BIDDER/PROPOSER HEREBY STATES that all MBE/WBE firms included in this Plan are certified MBEs/WBEs by at least one of the entities listed in the General Conditions.

I. **BIDDER/PROPOSER MBE/WBE STATUS:** (check the appropriate line)

____ Bidder/Proposer is a certified MBE or WBE firm. (If so, attach copy of appropriate Letter of Certification)

____ Bidder/Proposer is a Joint Venture and one or more Joint Venture partners are certified MBEs or WBEs. (If so, attach copies of Letter(s) of Certification, a copy of Joint Venture Agreement clearly describing the role of the MBE/WBE firm(s) and its ownership interest in the Joint Venture and a completed Joint Venture Affidavit – available from the Office of Contract Compliance)

X Bidder/Proposer is not a certified MBE or WBE firm, nor a Joint Venture with MBE/WBE partners, but will utilize MBE and WBE firms either directly or indirectly in the performance of the Contract. (If so, complete Sections II and III).

II. [X] **Direct Participation of MBE/WBE Firms** [ ] **Indirect Participation of MBE/WBE Firms**

Where goals have not been achieved through direct participation, Bidder/Proposer shall include documentation outlining efforts to achieve Direct Participation at the time of Bid/Proposal submission. Indirect Participation will only be considered after all efforts to achieve Direct Participation have been exhausted. Only after written documentation of Good Faith Efforts is received will Indirect Participation be considered.

MBEs/WBEs that will perform as subcontractors/suppliers/consultants include the following:

MBE/WBE Firm: Midco Electric Supply, Inc.

Address: 7237 W. 90th Place, Bridgeview, IL 60455

E-mail: DQuinlan@midcoelectric.com

Contact Person: Diane Quinlan Phone: 708-599-7777

Dollar Amount Participation: $ 59,911.50, supplier 60% credit = $35,946.90

Percent Amount of Participation: 1.37% %

*Letter of Intent attached? Yes X No ____
*Letter of Certificetion attached? Yes X No ____

MBE/WBE Firm: Evergreen Supply

Address: 9901 S. Torrence, Chicago, IL 60617

E-mail: ckramer@evergreensupply.com

Contact Person: Colleen Kramer Phone: 773-375-4750

Dollar Amount Participation: $ 66,529.84 supplier 60% credit = $39,917.90

Percent Amount of Participation: 1.5% %

*Letter of Intent attached? Yes X No ____
*Letter of Certification attached? Yes X No ____

Attach additional sheets as needed.

***Additionally, all Letters of Intent, Letters of Certification and documentation of Good Faith Efforts omitted from this bid/proposal must be submitted to the Office of Contract Compliance so as to assure receipt by the Contract Compliance Administrator not later than three (3) business days after the Bid Opening date.**

COOK COUNTY GOVERNMENT LETTER OF INTENT (SECTION 2)

M/WBE Firm: City Lights, Ltd.

Address: 9993 Virginia Avenue

City/State: Chicago Ridge Zip IL 60415

Phone: 773-626-9162 Fax: 773-626-5415

Email: jackie@citylightsltd.com
john@citylightsltd.com

Certifying Agency: City of Chicago

Certification Expiration Date: 05/01/2017

FEIN #: 36-3835589

Contact Person: Jacqueline Hoffman or John Candelaria

Contract #: 1328-12938

Participation: [X] Direct [ ] Indirect

Will the M/WBE firm be subcontracting any of the performance of this contract to another firm?

[X] No [ ] Yes – Please attach explanation. Proposed Subcontractor:

The undersigned M/WBE is prepared to provide the following Commodities/Services for the above named Project/ Contract:

Electrical Construction - See Attached

Indicate the **Dollar Amount**, or **Percentage**, and the **Terms of Payment** for the above-described Commodities/ Services:

See Attached 7.25%, Net 30

(If more space is needed to fully describe M/WBE Firm's proposed scope of work and/or payment schedule, attach additional sheets)

THE UNDERSIGNED PARTIES AGREE that this Letter of Intent will become a binding Subcontract Agreement conditioned upon the Bidder/Proposer's receipt of a signed contract from the County of Cook. The Undersigned Parties do also certify that they did not affix their signatures to this document until all areas under Description of Service/ Supply and Fee/Cost were completed.

X Signature (M/WBE)

Jacqueline Hoffman/President
Print Name

City Lights, Ltd.
Firm Name

September 13, 2013
Date

Signature (Prime Bidder/Proposer)

Michael K. Knutson
Print Name

Meade, Inc.
Firm Name

9/13/13
Date

Subscribed and sworn before me

this 13th day of September, 20 13

Notary Public Cheryl Foley

SEAL

OFFICIAL SEAL
CHERYL FOLEY
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:12/31/15

Subscribed and sworn before me

this 13th day of September, 20 13

Notary Public Joan T. Maselli

SEAL

"OFFICIAL SEAL"
JOAN T. MASELLI
Notary Public, State of Illinois
My Commission Expires 05/15/14

City Lights		Percent Participation	7.25%
ITEM	UNIT	PAY ITEM	TOTAL COST
AZ-66	40	ILLUMINATED STREET NAME SIGN 6-FOOT	132,200.00
AZ-67	15	ILLUMINATED STREET NAME SIGN 8-FOOT	57,600.00
		Total Participation:	189,800.00

DEPARTMENT OF PROCUREMENT SERVICES

MAY 1 1 2012

CITY OF CHICAGO

Jacqueline Hoffman
City Lights, Ltd.
9993 Virginia Ave.
Chicago Ridge, Illinois 60415

Annual Certificate Expires: May 1, 2013

Dear Ms. Hoffman:

We are pleased to inform you that City Lights, Ltd. has been certified as a Minority Business Enterprise (MBE)/Women Business Enterprise (WBE) by the City of Chicago. This MBE/WBE certification is valid until May 1, 2017; however your firm must be re-validated annually.

As a condition of continued certification during this five year period, you must file an annual No-Change Affidavit. Your firm's **No Change Affidavit is due by May 1, 2013.** Please remember, you have an affirmative duty to file your No-Change Affidavit 60 days prior to the date of expiration. Therefore, you must file your **No-Change Affidavit by March 1, 2013.**

It is important to note that you also have an ongoing affirmative duty to notify the City of Chicago of any changes in ownership or control of your firm, or any other fact affecting your firm's eligibility for certification within **10 days** of such change. These changes may include but are not limited to a change of address, change of business structure, change in ownership or ownership structure, change of business operations, and/or gross receipts that exceed the program threshold.

Please note – you shall be deemed to have had your certification lapse and will be ineligible to participate as a MBE/WBE if you fail to:

- file your No Change Affidavit within the required time period;
- provide financial or other records requested pursuant to an audit within the required time period; or
- notify the City of any changes affecting your firm's certification within 10 days of such change.

Further, if you or your firm is found to be involved in certification, bidding and/or contractual fraud or abuse, the City will pursue decertification and debarment. And in addition to any other penalty imposed by law, any person who knowingly obtains, or knowingly assists another in obtaining, a contract with the city by falsely representing that the individual or entity, or the individual or entity assisted, is a minority-owned business or a woman-owned business, is guilty of a misdemeanor, punishable by incarceration in the county jail for a period not to exceed six months or a fine of not less than $5,000.00 and not more than $10,000, or both.

Your firm's name will be listed in the City's Directory of Minority and Women-Owned Business Enterprises in the specialty area(s) of:

NAICS – 237310 – Highway, Street and Bridge Construction
NAICS – 237130 – Power and Communication Line Related Structures

Your firm's participation on City contracts will be credited only toward Minority Owned Business Enterprise (MBE)/Women Business Enterprise (WBE) goals in your area(s) of specialty. While your participation on City contracts is not limited to your specialty, credit toward goals will be given only for work done in the specialty category.

Thank you for your continued interest in the City's Minority and Women-Owned Business Enterprise (MBE/WBE) Program.

Sincerely,

Jamie L. Rhee
Chief Procurement Officer

COOK COUNTY GOVERNMENT LETTER OF INTENT (SECTION 2)

M/WBE Firm: Taylor Electric Company

Certifying Agency: City of Chicago

Address: 7811 S Stony Island Ave

Certification Expiration Date: 10/1/13

City/State: Chicago, IL Zip 60649

FEIN #: 36-2791520

Phone: 773-346-5658 Fax: 773-346-5659

Contact Person: Kendra Dinkins

Email: kddinkins@taylorelectricco.com

Contract #: 1328-12938

Participation: [X] Direct [ ] Indirect

Will the M/WBE firm be subcontracting any of the performance of this contract to another firm?

[X] No [ ] Yes – Please attach explanation. Proposed Subcontractor:

The undersigned M/WBE is prepared to provide the following Commodities/Services for the above named Project/ Contract:

A1 Traffic Signal Maintenance	$384,000.00
Article III Special Provisions Item 6 Furnish & install LED relamp for traffic signal intersections	$338,378.16
TOTAL:	$722,378.16

Indicate the **Dollar Amount**, or **Percentage**, and the **Terms of Payment** for the above-described Commodities/ Services:

$722,378.16 Net 30

(If more space is needed to fully describe M/WBE Firm's proposed scope of work and/or payment schedule, attach additional sheets)

THE UNDERSIGNED PARTIES AGREE that this Letter of Intent will become a binding Subcontract Agreement conditioned upon the Bidder/Proposer's receipt of a signed contract from the County of Cook. The Undersigned Parties do also certify that they did not affix their signatures to this document until all areas under Description of Service/ Supply and Fee/Cost were completed.

Signature (*M/WBE*)

Kendra Dinkins

Print Name

Taylor Electric Company, Inc.

Firm Name

8/26/13

Date

Signature (*Prime Bidder/Proposer*)

Michael K. Knutson

Print Name

Meade, Inc.

Firm Name

9/13/13

Date

Subscribed and sworn before me

this 26th day of August, 20 13

Notary Public

SEAL

NOTARY PUBLIC OFFICIAL SEAL STATE OF ILLINOIS KAREN DINKINS MY COMMISSION EXPIRES AUGUST 31, 2014

Subscribed and sworn before me

this 13th day of September, 20 13

Notary Public

SEAL

"OFFICIAL SEAL" JOAN T. MASELLI Notary Public, State of Illinois My Commission Expires 05/15/14

DEPARTMENT OF PROCUREMENT SERVICES

CITY OF CHICAGO

mtaylor@taylorelectricco.com

July 3, 2013

Martha Taylor
Taylor Electric Company
7811 S. Stony Island Ave.
Chicago, IL 60649

Dear Ms. Taylor:

This letter is to inform you that the City of Chicago has extended your status as a **Minority Business Enterprise (MBE)** until **October 1, 2013**. We are providing this extension to allow enough time to provide any additional documentation that your application may be missing and for our office to complete our review of all of the submitted documents.

This extension does not guarantee eligibility in the program but will act as a courtesy extension until we receive all of the required documentation and complete a review of that documentation.

Please present this letter and a copy of your last certification letter as evidence of your certification to be included with bid document submittals as needed.

If you have any questions, please feel free to contact our office at (312) 744-1929.

Sincerely,

George Coleman
Deputy Procurement Officer

GC:al

COOK COUNTY GOVERNMENT LETTER OF INTENT (SECTION 2)

M/WBE Firm: Midco Electric Supply, Inc

Certifying Agency: City of Chicago

Address: 7237 W. 90th Place

Certification Expiration Date: 07/15/2018

City/State: Bridgeview, IL Zip 60455

FEIN #: 36-3861320

Phone: 708-599-7777 Fax: 708-599-4178

Contact Person: Diane Quinlan

Email: DQuinlan@midcoelectric.com

Contract #: 1328-12938

Participation: [x] Direct [ ] Indirect

Will the M/WBE firm be subcontracting any of the performance of this contract to another firm?

[x] No [ ] Yes – Please attach explanation. Proposed Subcontractor: _____

The undersigned M/WBE is prepared to provide the following Commodities/Services for the above named Project/ Contract:

Routine Traffic Signal knockdown material	$30,000.00
AZ75 (5) Uninterruptible Power Supply	$22,669.50
AZ64 (4) Illuminated Sign, LED	7,242.00
TOTAL:	$59,911.50, supplier 60% credit = $35,946.90

Indicate the **Dollar Amount**, or **Percentage**, and the **Terms of Payment** for the above-described Commodities/ Services:

1.37% , Net 30

(If more space is needed to fully describe M/WBE Firm's proposed scope of work and/or payment schedule, attach additional sheets)

THE UNDERSIGNED PARTIES AGREE that this Letter of Intent will become a binding Subcontract Agreement conditioned upon the Bidder/Proposer's receipt of a signed contract from the County of Cook. The Undersigned Parties do also certify that they did not affix their signatures to this document until all areas under Description of Service/ Supply and Fee/Cost were completed.

Diane Quinlan
Signature (*M/WBE*)

Diane Quinlan
Print Name

Midco Electric Supply, Inc.
Firm Name

8/27/13
Date

Signature (*Prime Bidder/Proposer*)

Michael K. Knutson
Print Name

Meade, Inc.
Firm Name

9/13/13
Date

Subscribed and sworn before me
this 27th day of August, 20 13.
Notary Public Jenette R. Morelli
SEAL

NOTARY PUBLIC OFFICIAL SEAL STATE OF ILLINOIS
JENETTE R MORELLI
MY COMMISSION EXPIRES
JUNE 16, 2014

Subscribed and sworn before me
this 13th day of September, 2013.
Notary Public Joan T. Masell
SEAL

"OFFICIAL SEAL"
JOAN T. MASELLI
Notary Public, State of Illinois
My Commission Expires 06/15/14

DEPARTMENT OF PROCUREMENT SERVICES

CITY OF CHICAGO

AUG 0 2 2013

Diane Quinlan
Midco Electric Supply, Inc.
7237 W. 90th Place
Bridgeview, IL 60445

Dear Ms. Quinlan:

We are pleased to inform you that **Midco Electric Supply, Inc.** has been recertified as a **Women Business Enterprise ("WBE")** by the City of Chicago ("City"). This **WBE** certification is valid until **07/15/2018**; however your firm's certification must be revalidated annually. In the past the City has provided you with an annual letter confirming your certification; such letters will no longer be issued. As a consequence, we require you to be even more diligent in filing your **annual No-Change Affidavit 60 days** before your annual anniversary date.

It is now your responsibility to check the City's certification directory and verify your certification status. As a condition of continued certification during the five year period stated above, you must file an annual No-Change Affidavit. Your firm's **annual No-Change Affidavit** is due by **07/15/2014, 07/15/2015, 07/15/2016, and 07/15/2017**. Please remember, you have an affirmative duty to file your **No-Change Affidavit 60 days** prior to the date of expiration. Failure to file your annual No-Change Affidavit may result in the suspension or rescission of your certification.

Your firm's five year certification will expire on **07/15/2018**. You have an affirmative duty to file for recertification **60 days** prior to the date of the five year anniversary date. Therefore, you must file for recertification by **05/15/2018.**

It is important to note that you also have an ongoing affirmative duty to notify the City of any changes in ownership or control of your firm, or any other fact affecting your firm's eligibility for certification **within 10 days** of such change. These changes may include but are not limited to a change of address, change of business structure, change in ownership or ownership structure, change of business operations, gross receipts and or personal net worth that exceed the program threshold. Failure to provide the City with timely notice of such changes may result in the suspension or rescission of your certification. In addition, you may be liable for civil penalties under Chapter 1-22, "False Claims", of the Municipal Code of Chicago.

Please note – you shall be deemed to have had your certification lapse and will be ineligible to participate as a **WBE** if you fail to:

- File your annual No-Change Affidavit within the required time period;
- Provide financial or other records requested pursuant to an audit within the required time period;
- Notify the City of any changes affecting your firm's certification **within 10 days** of such change; or
- File your recertification within the required time period.

Please be reminded of your contractual obligation to cooperate with the City with respect to any reviews, audits or investigation of its contracts and affirmative action programs. We strongly encourage you to assist us in maintaining the integrity of our programs by reporting instances or suspicions of fraud or abuse to the **City's Inspector General at chicagoinspectorgeneral.org, or 866-IG-TIPLINE (866-448-4754).**

Be advised that if you or your firm is found to be involved in certification, bidding and/or contractual fraud or abuse, the City will pursue decertification and debarment. In addition to any other penalty imposed by law, any person who knowingly obtains, or knowingly assists another in obtaining a contract with the City by falsely representing the individual or entity, or the individual or entity assisted is guilty of a misdemeanor, punishable by incarceration in the county jail for a period not to exceed six months, or a fine of not less than $5,000 and not more than $10,000 or both.

Your firm's name will be listed in the City's Directory of Minority and Women-Owned Business Enterprises in the specialty area(s) of:

NAICS Code(s):
423610 – Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers
423690 – Other Electronic Parts and Equipment Merchant Wholesalers
423710 – Hardware Merchant Wholesalers

Your firm's participation on City contracts will be credited only toward **Women Business Enterprise** goals in your area(s) specialty. While your participation on City contracts is not limited to your area of specialty, credit toward goals will be given only for work that is self-performed and providing a commercially useful function that is done in the approved specialty category.

Thank you for your interest in the City's Minority and Women-Owned Business Enterprise (MBE/WBE) Program.

Sincerely,

Jamie L. Rhee
Chief Procurement Officer

JLR/dw

COOK COUNTY GOVERNMENT LETTER OF INTENT (SECTION 2)

M/WBE Firm: Evergreen Supply
Certifying Agency: City of Chicago
Address: 9901 S. Torrence
Certification Expiration Date: 2.1.14
City/State: Chicago Zip IL 60617
FEIN #: 36 3444463
Phone: 773 3754750 Fax: 773 3754765
Contact Person: Colleen Kramer
Email: ckramer@evergreensupply.com
Contract #: EMC 2014 1328-12938

Participation: [X] Direct [ ] Indirect

Will the M/WBE firm be subcontracting any of the performance of this contract to another firm?

[X] No [ ] Yes – Please attach explanation. Proposed Subcontractor:

The undersigned M/WBE is prepared to provide the following Commodities/Services for the above named Project/ Contract:

Electrical Material

Item DX7 Flap Gate Replacement - $66,529.84, supplier 60% credit = $39,917.50

Indicate the **Dollar Amount**, or **Percentage**, and the **Terms of Payment** for the above-described Commodities/ Services:

1.5% , Net 30

(If more space is needed to fully describe M/WBE Firm's proposed scope of work and/or payment schedule, attach additional sheets)

THE UNDERSIGNED PARTIES AGREE that this Letter of Intent will become a binding Subcontract Agreement conditioned upon the Bidder/Proposer's receipt of a signed contract from the County of Cook. The Undersigned Parties do also certify that they did not affix their signatures to this document until all areas under Description of Service/ Supply and Fee/Cost were completed.

Signature (*M/WBE*)	Signature (*Prime Bidder/Proposer*)
Colleen Kramer	Michael K. Knutson
Print Name	Print Name
Evergreen Supply Co.	Meade, Inc.
Firm Name	Firm Name
8.26.13	9/13/13
Date	Date

Subscribed and sworn before me
this 26 day of August 2013
Notary Public
SEAL

OFFICIAL SEAL
WENDY A PRICE
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:05/27/14

Subscribed and sworn before me
this 13th day of September, 2013
Notary Public Joan T. Maselli
SEAL

"OFFICIAL SEAL"
JOAN T. MASELLI
Notary Public, State of Illinois
My Commission Expires 05/15/14

DEPARTMENT OF PROCUREMENT SERVICES

FEB 2 7 2013 CITY OF CHICAGO

Ms. Colleen Kramer
Evergreen Supply Co.
9901 S. Torrence Avenue
Chicago, Il 60617

Annual Certificate Expires February 1, 2014

Dear Ms. Kramer:

We are pleased to inform you that **Evergreen Supply Co.** has been recertified as a **Woman-Owned Business Enterprise (WBE)** by the City of Chicago. This certification is valid until **February 1, 2018**; however your firm must be re-validated annually.

As a condition of continued certification during this five year period, you must file an annual No-Change Affidavit. Your firm's No Change Affidavit is due by **February 1, 2014**. Please remember, you have an affirmative duty to file your No-Change Affidavit 60 days prior to the date of expiration. Therefore, you must file your No-Change Affidavit by **December 1, 2013**.

It is important to note that you also have an ongoing affirmative duty to notify the City of Chicago of any changes in ownership or control of your firm, or any other fact affecting your firm's eligibility for certification within **10** days of such change. These changes may include but are not limited to a change of address, change of business structure, change in ownership or ownership structure, change of business operations, and/or gross receipts that exceed the program threshold.

Please note – you shall be deemed to have had your certification lapse and will be ineligible to participate as a MBE/WBE/BEPD <u>if you fail to:</u>

FEB 2 7 2013

- file your No Change Affidavit within the required time period;
- provide financial or other records requested pursuant to an audit within the required time period; or
- notify the City of any changes affecting your firm's certification within 10 days of such change.

Further, if you or your firm is found to be involved in certification, bidding and/or contractual fraud or abuse, the City will pursue decertification and debarment. And in addition to any other penalty imposed by law, any person who knowingly obtains, or knowingly assists another in obtaining, a contract with the city by falsely representing that the individual or entity, or the individual or entity assisted, is a minority-owned business or a woman-owned business, is guilty of a misdemeanor, punishable by incarceration in the county jail for a period not to exceed six months or a fine of not less than $5,000.00 and not more than $10,000, or both.

Your firm's name will be listed in the City's Directory of Minority Business Enterprises and Women Business Enterprises in the specialty area(s) of:

NAICS 423610	**Construction Materials, Electrical, Merchant Wholesalers**
NAICS 423610	**Fixtures, Electric Lighting, Merchant Wholesalers**
NAICS 423610	**Insulated Wire or Cable Merchant Wholesalers**
NAICS 423690	**Condensers, Electronic, Merchant Wholesalers**
NAICS 423690	**Electronic Parts (e.g., condensers, connectors, switches) Merchant Wholesalers**

Your firm's participation on City contracts will be credited only toward **WBE** goals in your area(s) of specialty. While your participation on City contracts is not limited to your specialty, credit toward goals will be given only for work done in the specialty category.

Sincerely,

Jamie L. Rhee
Chief Procurement Officer

JR/cm

PETITION FOR WAIVER OF MBE/WBE PARTICIPATION (SECTION 3)

A. BIDDER/PROPOSER HEREBY REQUESTS:

☐ **FULL MBE WAIVER** ☐ **FULL WBE WAIVER**

☐ **REDUCTION (PARTIAL MBE and/or WBE PARTICIPATION)**

____ % of Reduction for MBE Participation
____ % of Reduction for WBE Participation

B. REASON FOR FULL/REDUCTION WAIVER REQUEST

Bidder/Proposer shall check each item applicable to its reason for a waiver request. Additionally, supporting documentation shall be submitted with this request. If such supporting documentation cannot be submitted with bid/proposal/quotation, such documentation shall be submitted directly to the Office of Contract Compliance no later than three (3) days from the date of submission date.

☐ (1) Lack of sufficient qualified MBEs and/or WBEs capable of providing the goods or services required by the contract. **(Please explain)**

☐ (2) The specifications and necessary requirements for performing the contract make it impossible or economically infeasible to divide the contract to enable the contractor to utilize MBEs and/or WBEs in accordance with the applicable participation. **(Please explain)**

☐ (3) Price(s) quoted by potential MBEs and/or WBEs are above competitive levels and increase cost of doing business and would make acceptance of such MBE and/or WBE bid economically impracticable, taking into consideration the percentage of total contract price represented by such MBE and/or WBE bid. **(Please explain)**

☐ (4) There are other relevant factors making it impossible or economically infeasible to utilize MBE and/or WBE firms. **(Please explain)**

C. GOOD FAITH EFFORTS TO OBTAIN MBE/WBE PARTICIPATION

☐ (1) Made timely written solicitation to identified MBEs and WBEs for utilization of goods and/or services; and provided MBEs and WBEs with a timely opportunity to review and obtain relevant specifications, terms and conditions of the proposal to enable MBEs and WBEs to prepare an informed response to solicitation. **(Please attach)**

☐ (2) Followed up initial solicitation of MBEs and WBEs to determine if firms are interested in doing business. **(Please attach)**

☐ (3) Advertised in a timely manner in one or more daily newspapers and/or trade publication for MBEs and WBEs for supply of goods and services. **(Please attach)**

☐ (4) Used the services and assistance of the Office of Contract Compliance staff. **(Please explain)**

☐ (5) Engaged MBEs & WBEs for indirect participation. **(Please explain)**

D. OTHER RELEVANT INFORMATION

Attach any other documentation relative to Good Faith Efforts in complying with MBE/WBE participation.

CERTIFICATIONS (SECTION 4)

THE FOLLOWING CERTIFICATIONS ARE MADE PURSUANT TO STATE LAW AND THE CODE. THE UNDERSIGNED IS CAUTIONED TO CAREFULLY READ THESE CERTIFICATIONS PRIOR TO SIGNING THE SIGNATURE PAGE. SIGNING THE SIGNATURE PAGE SHALL CONSTITUTE A WARRANTY BY THE UNDERSIGNED THAT ALL THE STATEMENTS, CERTIFICATIONS AND INFORMATION SET FORTH WITHIN THESE CERTIFICATIONS ARE TRUE, COMPLETE AND CORRECT AS OF THE DATE THE SIGNATURE PAGE IS SIGNED. THE UNDERSIGNED IS NOTIFIED THAT IF THE COUNTY LEARNS THAT ANY OF THE FOLLOWING CERTIFICATIONS WERE FALSELY MADE, THAT ANY CONTRACT ENTERED INTO WITH THE UNDERSIGNED SHALL BE SUBJECT TO TERMINATION.

A. PERSONS AND ENTITIES SUBJECT TO DISQUALIFICATION

No person or business entity shall be awarded a contract or sub-contract, for a period of five (5) years from the date of conviction or entry of a plea or admission of guilt, civil or criminal, if that person or business entity:

1) Has been convicted of an act committed, within the State of Illinois, of bribery or attempting to bribe an officer or employee of a unit of state, federal or local government or school district in the State of Illinois in that officer's or employee's official capacity;

2) Has been convicted by federal, state or local government of an act of bid-rigging or attempting to rig bids as defined in the Sherman Anti-Trust Act and Clayton Act. Act. 15 U.S.C. Section 1 *et seq.;*

3) Has been convicted of bid-rigging or attempting to rig bids under the laws of federal, state or local government;

4) Has been convicted of an act committed, within the State, of price-fixing or attempting to fix prices as defined by the Sherman Anti-Trust Act and the Clayton Act. 15 U.S.C. Section 1, *et seq.;*

5) Has been convicted of price-fixing or attempting to fix prices under the laws the State;

6) Has been convicted of defrauding or attempting to defraud any unit of state or local government or school district within the State of Illinois;

7) Has made an admission of guilt of such conduct as set forth in subsections (1) through (6) above which admission is a matter of record, whether or not such person or business entity was subject to prosecution for the offense or offenses admitted to; or

8) Has entered a plea of *nolo contendere* to charge of bribery, price-fixing, bid-rigging, or fraud, as set forth in sub-paragraphs (1) through (6) above.

In the case of bribery or attempting to bribe, a business entity may not be awarded a contract if an official, agent or employee of such business entity committed the Prohibited Act on behalf of the business entity and pursuant to the direction or authorization of an officer, director or other responsible official of the business entity, and such Prohibited Act occurred within three years prior to the award of the contract. In addition, a business entity shall be disqualified if an owner, partner or shareholder controlling, directly or indirectly, 20 % or more of the business entity, or an officer of the business entity has performed any Prohibited Act within five years prior to the award of the Contract.

THE UNDERSIGNED HEREBY CERTIFIES THAT: The Undersigned has read the provisions of Section A, Persons and Entities Subject to Disqualification, that the Undersigned has not committed any Prohibited Act set forth in Section A, and that award of the Contract to the Undersigned would not violate the provisions of such Section or of the Code.

B. BID-RIGGING OR BID ROTATING

THE UNDERSIGNED HEREBY CERTIFIES THAT: *In accordance with 720 ILCS 5/33 E-11, neither the Undersigned nor any Affiliated Entity is barred from award of this Contract as a result of a conviction for the violation of State laws prohibiting bid-rigging or bid rotating.*

C. DRUG FREE WORKPLACE ACT

THE UNDERSIGNED HEREBY CERTIFIES THAT: The Undersigned will provide a drug free workplace, as required by Public Act 86-1459 (30 ILCS 580/2-11).

D. DELINQUENCY IN PAYMENT OF TAXES

THE UNDERSIGNED HEREBY CERTIFIES THAT: *The Undersigned is not an owner or a party responsible for the payment of any tax or fee administered by Cook County, by a local municipality, or by the Illinois Department of Revenue, which such tax or fee is delinquent, such as bar award of a contract or subcontract pursuant to the Code, Chapter 34, Section 34-129.*

E. HUMAN RIGHTS ORDINANCE

No person who is a party to a contract with Cook County ("County") shall engage in unlawful discrimination or sexual harassment against any individual in the terms or conditions of employment, credit, public accommodations, housing, or provision of County facilities, services or programs (Code Chapter 42, Section 42-30 *et seq*).

F. ILLINOIS HUMAN RIGHTS ACT

THE UNDERSIGNED HEREBY CERTIFIES THAT: *It is in compliance with the the Illinois Human Rights Act (775 ILCS 5/2-105), and agrees to abide by the requirements of the Act as part of its contractual obligations.*

G. MACBRIDE PRINCIPLES, CODE CHAPTER 34, SECTION 34-132

If the primary contractor currently conducts business operations in Northern Ireland, or will conduct business during the projected duration of a County contract, the primary contractor shall make all reasonable and good faith efforts to conduct any such business operations in Northern Ireland in accordance with the MacBride Principles for Northern Ireland as defined in Illinois Public Act 85-1390.

H. LIVING WAGE ORDINANCE PREFERENCE (COOK COUNTY CODE, CHAPTER 34, SECTION 34-127;

The Code requires that a living wage must be paid to individuals employed by a Contractor which has a County Contract and by all subcontractors of such Contractor under a County Contract, throughout the duration of such County Contract. The amount of such living wage is determined from time to time by, and is available from, the Chief Financial Officer of the County.

For purposes of this EDS Section 4, H, "Contract" means any written agreement whereby the County is committed to or does expend funds in connection with the agreement or subcontract thereof. The term "Contract" as used in this EDS, Section 4, I, specifically excludes contracts with the following:

1) Not-For Profit Organizations (defined as a corporation having tax exempt status under Section 501(C)(3) of the United State Internal Revenue Code and recognized under the Illinois State not-for -profit law);

2) Community Development Block Grants;

3) Cook County Works Department;

4) Sheriff's Work Alternative Program; and

5) Department of Correction inmates.

REQUIRED DISCLOSURES (SECTION 5)

1. DISCLOSURE OF LOBBYIST CONTACTS

List all persons or entities that have made lobbying contacts on your behalf with respect to this contract:

Name Address

None

2. LOCAL BUSINESS PREFERENCE DISCLOSURE; CODE, CHAPTER 34, SECTION 34-151(p);

"Local Business" shall mean a person authorized to transact business in this State and having a bona fide establishment for transacting business located within Cook County at which it was actually transacting business on the date when any competitive solicitation for a public contract is first advertised or announced and further which employs the majority of its regular, full time work force within Cook County, including a foreign corporation duly authorized to transact business in this State and which has a bona fide establishment for transacting business located within Cook County at which it was actually transacting business on the date when any competitive solicitation for a public contract is first advertised or announced and further which employs the majority of its regular, full time work force within Cook County.

a) Is Bidder a "Local Business" as defined above?

Yes: X No: _____

b) If yes, list business addresses within Cook County:

9550 W. 55th St, Suite A, McCook, IL 60525
5401 W. Harrison, Chicago, IL 60644
977 W. Cermak Road, Chicago, IL 60608
6850 W. 62nd St, Chicago, IL 60638

c) Does Bidder employ the majority of its regular full-time workforce within Cook County?

Yes: X No: _____

3. THE CHILD SUPPORT ENFORCEMENT ORDINANCE (PREFERENCE (CODE, CHAPTER 34, SECTION 34-366)

Every Applicant for a County Privilege shall be in full compliance with any child support order before such Applicant is entitled to receive or renew a County Privilege. When delinquent child support exists, the County shall not issue or renew any County Privilege, and may revoke any County Privilege.

All Applicants are required to review the Cook County Affidavit of Child Support Obligations attached to this EDS (EDS-8) and complete the following, based upon the definitions and other information included in such Affidavit.

4. REAL ESTATE OWNERSHIP DISCLOSURES.

The Undersigned must indicate by checking the appropriate provision below and providing all required information that either:

a) The following is a complete list of all real estate owned by the Undersigned in Cook County:

PERMANENT INDEX NUMBER(S): See attached

(ATTACH SHEET IF NECESSARY TO LIST ADDITIONAL INDEX NUMBERS)

OR:

b) _____The Undersigned owns no real estate in Cook County.

5. EXCEPTIONS TO CERTIFICATIONS OR DISCLOSURES.

If the Undersigned is unable to certify to any of the Certifications or any other statements contained in this EDS and not explained elsewhere in this EDS, the Undersigned must explain below:

_____

_____

If the letters, "NA", the word "None" or "No Response" appears above, or if the space is left blank, it will be conclusively presumed that the Undersigned certified to all Certifications and other statements contained in this EDS.

Cook County Real Estate Tax Log

Property Number	Property Address
16-16-301-009-0000	5419 W Harrison Street
16-16-301-017-0000	5333 W Harrison Street
16-16-301-018-0000	5331 W Harrison Street
16-16-301-019-0000	5329 W Harrison Street
16-16-301-020-0000	5325 W Harrison Street
16-16-301-021-0000	5323 W Harrison Street
16-16-301-022-0000	5321 W Harrison Street
16-16-301-025-0000	5313 W Harrison Street
16-16-301-026-0000	5309 W Harrison Street
16-16-301-046-0000	5417 W Harrison Street
16-16-301-048-0000	5401 W Harrison Street
16-16-301-050-0000	1300 W Flournoy Street
16-16-301-051-0000	1336 W Flournoy Street
16-16-301-052-0000	5337 W Harrison Street
16-16-301-053-0000	1350 W Flournoy Street

19-18-303-005-0000
19-18-303-006-0000
19-18-303-007-0000

COMMON ADDRESS: 6850 W. 62nd STREET, CHICAGO IL 60638

COOK COUNTY DISCLOSURE OF OWNERSHIP INTEREST STATEMENT

The Cook County Code of Ordinances (§2-610 *et seq.*) requires that any Applicant for any County Action must disclose information concerning ownership interests in the Applicant. This Disclosure of Ownership Interest Statement must be completed with all information current as of the date this Statement is signed. Furthermore, this Statement must be kept current, by filing an amended Statement, until such time as the County Board or County Agency shall take action on the application. The information contained in this Statement will be maintained in a database and made available for public viewing.

If you are asked to list names, but there are no applicable names to list, you must state NONE. An incomplete Statement will be returned and any action regarding this contract will be delayed. A failure to fully comply with the ordinance may result in the action taken by the County Board or County Agency being voided.

"*Applicant*" means any Entity or person making an application to the County for any County Action.

"County Action" means any action by a County Agency, a County Department, or the County Board regarding an ordinance or ordinance amendment, a County Board approval, or other County agency approval, with respect to contracts, leases, or sale or purchase of real estate.

"Entity" or *"Legal Entity"* means a sole proprietorship, corporation, partnership, association, business trust, estate, two or more persons having a joint or common interest, trustee of a land trust, other commercial or legal entity or any beneficiary or beneficiaries thereof.

This Disclosure of Ownership Interest Statement must be submitted by :

1. An Applicant for County Action and

2. An individual or Legal Entity that holds stock or a beneficial interest in the Applicant and is listed on the Applicant's Statement (a "Holder") must file a Statement and complete #1 only under **Ownership Interest Declaration.**

Please print or type responses clearly and legibly. Add additional pages if needed, being careful to identify each portion of the form to which each additional page refers.

This Statement is being made by the [ ] Applicant or [ ] Stock/Beneficial Interest Holder

This Statement is an: [X] Original Statement or [ ] Amended Statement

Identifying Information:

Name: Meade, Inc. D/B/A: _____ EIN NO.: 27-4060761

Street Address: 9550 W. 55th Street, Suite A

City: McCook State: IL Zip Code: 60525

Phone No.: 708-588-2500

Form of Legal Entity:

[ ] Sole Proprietor [ ] Partnership [X] Corporation [ ] Trustee of Land Trust

[ ] Business Trust [ ] Estate [ ] Association [ ] Joint Venture

[ ] Other (describe) _____

Ownership Interest Declaration:

1. List the name(s), address, and percent ownership of each individual and each Entity having a legal or beneficial interest (including ownership) of more than five percent (5%) in the Applicant/Holder.

Name	Address	Percentage Interest in Applicant/Holder
L & H Co., Inc.	2215 York Rd. Suite 304, Oakbrook, IL 60523	100% (parent)

2. If the interest of any individual or any Entity listed in (1) above is held as an agent or agents, or a nominee or nominees, list the name and address of the principal on whose behalf the interest is held.

Name of Agent/Nominee	Name of Principal	Principal's Address

3. Is the Applicant constructively controlled by another person or Legal Entity? [ ] Yes [ ] No

If yes, state the name, address and percentage of beneficial interest of such person or legal entity, and the relationship under which such control is being or may be exercised.

Name	Address	Percentage of Beneficial Interest	Relationship

Declaration (check the applicable box):

[X] I state under oath that the Applicant has withheld no disclosure as to ownership interest in the Applicant nor eserved any information, data or plan as to the intended use or purpose for which the Applicant seeks County Board or other County Agency action.

[ ] I state under oath that the Holder has withheld no disclosure as to ownership interest nor reserved any information required to be disclosed.

Frank J. Lizzadro
Name of Authorized Applicant/Holder Representative (please print or type)

CEO
Title

Signature

9/13/13
Date

fjl@meade100.com
E-mail address

708-588-2500
Phone Number

Subscribed to and sworn before me
this 13th day of Sept., 20 13

My commission expires: 5/15/14

x Joan T. Maselli
Notary Public Signature

"OFFICIAL SEAL"
JOAN T. MASELLI
Notary Public, State of Illinois
My Commission Expires 05/15/14

COOK COUNTY BOARD OF ETHICS
69 W. WASHINGTON STREET, SUITE 3040
CHICAGO, ILLINOIS 60602
312/603-4304
312/603-9988 FAX 312/603-1011 TT/TDD

FAMILIAL RELATIONSHIP DISCLOSURE PROVISION:

Section 2-582 of the Cook County Ethics Ordinance requires any person or persons doing business with Cook County, upon execution of a contract with Cook County, to disclose to the Cook County Board of Ethics the existence of familial relationships they may have with all persons holding elective office in the State of Illinois, the County of Cook, or in any municipality within the County of Cook.

The disclosure required by this section shall be filed by January 1 of each calendar year or within thirty (30) days of the execution of any contract or lease. Any person filing a late disclosure statement after January 31 shall be assessed a late filing fee of $100.00 per day that the disclosure is late. Any person found guilty of violating any provision of this section or knowingly filing a false, misleading, or incomplete disclosure to the Cook County Board of Ethics shall be prohibited, for a period of three (3) years, from engaging, directly or indirectly, in any business with Cook County. *Note*: Please see Chapter 2 Administration, Article VII Ethics, Section 2-582 of the Cook County Code to view the full provisions of this section.

If you have questions concerning this disclosure requirement, please call the Cook County Board of Ethics at (312) 603-4304. *Note*: A current list of contractors doing business with Cook County is available via the Cook County Board of Ethics' website at: **http://www.cookcountygov.com/taxonomy/ethics/Listings/cc_ethics_VendorList_.pdf**

DEFINITIONS:

"*Calendar year*" means January 1 to December 31 of each year.

"*Doing business*" for this Ordinance provision means any one or any combination of leases, contracts, or purchases to or with Cook County or any Cook County agency in excess of $25,000 in any calendar year.

"*Familial relationship*" means a person who is related to an official or employee as spouse or any of the following, whether by blood, marriage or adoption:

- Parent
- Child
- Brother
- Sister
- Aunt
- Uncle
- Niece
- Nephew
- Grandparent
- Grandchild
- Father-in-law
- Mother-in-law
- Son-in-law
- Daughter-in-law
- Brother-in-law
- Sister-in-law
- Stepfather
- Stepmother
- Stepson
- Stepdaughter
- Stepbrother
- Stepsister
- Half-brother
- Half-sister

"*Person*" means any individual, entity, corporation, partnership, firm, association, union, trust, estate, as well as any parent or subsidiary of any of the foregoing, and whether or not operated for profit.

SWORN FAMILIAL RELATIONSHIP DISCLOSURE FORM

Pursuant to Section 2-582 of the Cook County Ethics Ordinance, any *person* doing business** with Cook County must disclose, to the Cook County Board of Ethics, the existence of *familial relationships** to any person holding elective office in the State of Illinois, Cook County, or in any municipality within Cook County. Please print your responses.

Name of Owner/Employee: Frank J. Lizzadro Title: CEO

Business Entity Name: Meade, Inc. Phone: 708-588-2500

Business Entity Address: 9550 W. 55th Street, Suite A, McCook, IL 60525

_____ The following familial relationship exists between the owner or any employee of the business entity contracted to do business with Cook County ***and*** any person holding elective office in the State of Illinois, Cook County, or in any municipality within Cook County.

	Owner/Employee Name:	Related to:	Relationship:
1.			
2.			
3.			
4.			
5.			

If more space is needed, attach an additional sheet following the above format.

X There is ***no*** familial relationship that exists between the owner or any employee of the business entity contracted to do business with Cook County and any person holding elective office in the State of Illinois, Cook County, or in any municipality within Cook County.

To the best of my knowledge and belief, the information provided above is true and complete.

Owner/Employee's Signature 9/13/13 Date

Subscribe and sworn before me this 13th Day of September, 20 13

a Notary Public in and for Cook County

(Signature)

"OFFICIAL SEAL"
JOAN T. MASELLI
Notary Public, State of Illinois
My Commission Expires 05/15/14

NOTARY PUBLIC SEAL

My Commission expires 5/15/14

Completed forms must be filed within **30** days of the execution of any contract or lease with Cook County and should be mailed to:

Cook County Board of Ethics
69 West Washington Street,
Suite 3040
Chicago, Illinois 60602

SIGNATURE BY A SOLE PROPRIETOR
(SECTION 6)

The Undersigned hereby certifies and warrants: that all of the statements, certifications and representations set forth in this EDS are true, complete and correct; that the Undersigned is in full compliance and will continue to be in compliance throughout the term of the Contract or County Privilege issued to the Undersigned with all the policies and requirements set forth in this EDS; and that all facts and information provided by the Undersigned in this EDS are true, complete and correct. The Undersigned agrees to inform the Chief Procurement Officer in writing if any of such statements, certifications, representations, facts or information becomes or is found to be untrue, incomplete or incorrect during the term of the Contract or County Privilege.

BUSINESS NAME:_____

BUSINESS ADDRESS:_____

_____

BUSINESS TELEPHONE:_____ FAX NUMBER:_____

FEIN/SSN:_____

COOK COUNTY BUSINESS REGISTRATION NUMBER:_____

SOLE PROPRIETOR'S SIGNATURE: _____

PRINT NAME: _____

DATE: _____

Subscribed to and sworn before me this

_____ day of _____, 20___.

My commission expires:

X_____ _____

Notary Public Signature Notary Seal

SIGNATURE BY A SOLE PROPRIETOR
(SECTION 6)

The Undersigned hereby certifies and warrants: that all of the statements, certifications and representations set forth in this EDS are true, complete and correct; that the Undersigned is in full compliance and will continue to be in compliance throughout the term of the Contract or County Privilege issued to the Undersigned with all the policies and requirements set forth in this EDS; and that all facts and information provided by the Undersigned in this EDS are true, complete and correct. The Undersigned agrees to inform the Chief Procurement Officer in writing if any of such statements, certifications, representations, facts or information becomes or is found to be untrue, incomplete or incorrect during the term of the Contract or County Privilege.

BUSINESS NAME:_____

BUSINESS ADDRESS:_____

_____

BUSINESS TELEPHONE:_____ FAX NUMBER:_____

FEIN/SSN:_____

COOK COUNTY BUSINESS REGISTRATION NUMBER:_____

SOLE PROPRIETOR'S SIGNATURE: _____

PRINT NAME: _____

DATE: _____

Subscribed to and sworn before me this

_____ day of _____, 20___.

My commission expires:

X_____ _____

Notary Public Signature Notary Seal

SIGNATURE BY A SOLE PROPRIETOR
(SECTION 6)

The Undersigned hereby certifies and warrants: that all of the statements, certifications and representations set forth in this EDS are true, complete and correct; that the Undersigned is in full compliance and will continue to be in compliance throughout the term of the Contract or County Privilege issued to the Undersigned with all the policies and requirements set forth in this EDS; and that all facts and information provided by the Undersigned in this EDS are true, complete and correct. The Undersigned agrees to inform the Chief Procurement Officer in writing if any of such statements, certifications, representations, facts or information becomes or is found to be untrue, incomplete or incorrect during the term of the Contract or County Privilege.

BUSINESS NAME:_____

BUSINESS ADDRESS:_____

_____

BUSINESS TELEPHONE:_____ FAX NUMBER:_____

FEIN/SSN:_____

COOK COUNTY BUSINESS REGISTRATION NUMBER:_____

SOLE PROPRIETOR'S SIGNATURE: _____

PRINT NAME: _____

DATE: _____

Subscribed to and sworn before me this

_____ day of _____, 20___.

My commission expires:

X_____ _____

Notary Public Signature Notary Seal

SIGNATURE BY A PARTNERSHIP (AND/OR A JOINT VENTURE)
(SECTION 7)

The Undersigned hereby certifies and warrants: that all of the statements, certifications, and representations set forth in this EDS are true, complete and correct; that the Undersigned is in full compliance and will continue to be in compliance throughout the term of the Contract or County Privilege issued to the Undersigned with all the policies and requirements set forth in this EDS; and that all of the facts and information provided by the Undersigned in this EDS are true, complete and correct. The Undersigned agrees to inform the Chief Procurement Officer in writing if any of such statements, certifications, representations, facts or information becomes or is found to be untrue, incomplete or incorrect during the term of the Contract or County Privilege. .

BUSINESS NAME:_____

BUSINESS ADDRESS:_____

_____

BUSINESS TELEPHONE:_____ FAX NUMBER:_____

CONTACT PERSON:_____ FEIN/SSN:_____

*COOK COUNTY BUSINESS REGISTRATION NUMBER:_____

SIGNATURE OF PARTNER AUTHORIZED TO EXECUTE CONTRACTS ON BEHALF OF PARTNERSHIP:

*BY: _____

Date:_____

Subscribed to and sworn before me this

_____ day of _____, 20___.

My commission expires:

X_____ _____

Notary Public Signature Notary Seal

* **Attach hereto a partnership resolution or other document authorizing the individual signing this Signature Page to so sign on behalf of the Partnership.**

SIGNATURE BY A PARTNERSHIP (AND/OR A JOINT VENTURE)
(SECTION 7)

The Undersigned hereby certifies and warrants: that all of the statements, certifications, and representations set forth in this EDS are true, complete and correct; that the Undersigned is in full compliance and will continue to be in compliance throughout the term of the Contract or County Privilege issued to the Undersigned with all the policies and requirements set forth in this EDS; and that all of the facts and information provided by the Undersigned in this EDS are true, complete and correct. The Undersigned agrees to inform the Chief Procurement Officer in writing if any of such statements, certifications, representations, facts or information becomes or is found to be untrue, incomplete or incorrect during the term of the Contract or County Privilege. .

BUSINESS NAME:_____

BUSINESS ADDRESS:_____

_____

BUSINESS TELEPHONE:_____ FAX NUMBER:_____

CONTACT PERSON:_____ FEIN/SSN:_____

*COOK COUNTY BUSINESS REGISTRATION NUMBER:_____

SIGNATURE OF PARTNER AUTHORIZED TO EXECUTE CONTRACTS ON BEHALF OF PARTNERSHIP:

*BY: _____

Date:_____

Subscribed to and sworn before me this

_____ day of _____, 20___.

My commission expires:

X_____ _____

Notary Public Signature Notary Seal

* **Attach hereto a partnership resolution or other document authorizing the individual signing this Signature Page to so sign on behalf of the Partnership.**

SIGNATURE BY A PARTNERSHIP (AND/OR A JOINT VENTURE)
(SECTION 7)

The Undersigned hereby certifies and warrants: that all of the statements, certifications, and representations set forth in this EDS are true, complete and correct; that the Undersigned is in full compliance and will continue to be in compliance throughout the term of the Contract or County Privilege issued to the Undersigned with all the policies and requirements set forth in this EDS; and that all of the facts and information provided by the Undersigned in this EDS are true, complete and correct. The Undersigned agrees to inform the Chief Procurement Officer in writing if any of such statements, certifications, representations, facts or information becomes or is found to be untrue, incomplete or incorrect during the term of the Contract or County Privilege. .

BUSINESS NAME:_____

BUSINESS ADDRESS:_____

_____

BUSINESS TELEPHONE:_____ FAX NUMBER:_____

CONTACT PERSON:_____ FEIN/SSN:_____

*COOK COUNTY BUSINESS REGISTRATION NUMBER:_____

SIGNATURE OF PARTNER AUTHORIZED TO EXECUTE CONTRACTS ON BEHALF OF PARTNERSHIP:

*BY: _____

Date:_____

Subscribed to and sworn before me this

_____ day of _____, 20___.

My commission expires:

X_____ _____

Notary Public Signature Notary Seal

* **Attach hereto a partnership resolution or other document authorizing the individual signing this Signature Page to so sign on behalf of the Partnership.**

SIGNATURE BY A LIMITED LIABILITY CORPORATION
(SECTION 8)

The Undersigned hereby certifies and warrants: that all of the statements, certifications, and representations set forth in this EDS are true, complete and correct; that the Undersigned is in full compliance and will continue to be in compliance throughout the term of the Contract or County Privilege issued to the Undersigned with all the policies and requirements set forth in this EDS; and that all of the facts and information provided by the Undersigned in this EDS are true, complete and correct. The Undersigned agrees to inform the Procurement Director in writing if any of such statements, certifications, representations, facts or information becomes or is found to be untrue, incomplete or incorrect during the term of the Contract or County Privilege.

BUSINESS NAME:_____

BUSINESS ADDRESS:_____

BUSINESS TELEPHONE:_____ FAX NUMBER:_____

CONTACT PERSON:_____

FEIN:_____* CORPORATE FILE NUMBER:_____

MANAGING MEMBER:_____ MANAGING MEMBER:_____

**SIGNATURE OF MANAGER: _____

ATTEST: _____

Subscribed and sworn to before me this

_____ day of _____, 20_____.

X_____ _____
Notary Public Signature Notary Seal

* **If the LLC is not registered in the State of Illinois, a copy of a current Certificate of Good Standing from the state of incorporation must be submitted with this Signature Page.**

** **Attach either a certified copy of the by-laws, articles, resolution or other authorization demonstrating such persons to sign the Signature Page on behalf of the LLC.**

SIGNATURE BY A LIMITED LIABILITY CORPORATION
(SECTION 8)

The Undersigned hereby certifies and warrants: that all of the statements, certifications, and representations set forth in this EDS are true, complete and correct; that the Undersigned is in full compliance and will continue to be in compliance throughout the term of the Contract or County Privilege issued to the Undersigned with all the policies and requirements set forth in this EDS; and that all of the facts and information provided by the Undersigned in this EDS are true, complete and correct. The Undersigned agrees to inform the Procurement Director in writing if any of such statements, certifications, representations, facts or information becomes or is found to be untrue, incomplete or incorrect during the term of the Contract or County Privilege.

BUSINESS NAME:_____

BUSINESS ADDRESS:_____

BUSINESS TELEPHONE:_____ FAX NUMBER:_____

CONTACT PERSON:_____

FEIN:_____* CORPORATE FILE NUMBER:_____

MANAGING MEMBER:_____ MANAGING MEMBER:_____

**SIGNATURE OF MANAGER: _____

ATTEST: _____

Subscribed and sworn to before me this

_____ day of _____, 20_____.

X_____ _____
Notary Public Signature Notary Seal

* **If the LLC is not registered in the State of Illinois, a copy of a current Certificate of Good Standing from the state of incorporation must be submitted with this Signature Page.**

** **Attach either a certified copy of the by-laws, articles, resolution or other authorization demonstrating such persons to sign the Signature Page on behalf of the LLC.**

SIGNATURE BY A LIMITED LIABILITY CORPORATION
(SECTION 8)

The Undersigned hereby certifies and warrants: that all of the statements, certifications, and representations set forth in this EDS are true, complete and correct; that the Undersigned is in full compliance and will continue to be in compliance throughout the term of the Contract or County Privilege issued to the Undersigned with all the policies and requirements set forth in this EDS; and that all of the facts and information provided by the Undersigned in this EDS are true, complete and correct. The Undersigned agrees to inform the Procurement Director in writing if any of such statements, certifications, representations, facts or information becomes or is found to be untrue, incomplete or incorrect during the term of the Contract or County Privilege.

BUSINESS NAME:_____

BUSINESS ADDRESS:_____

BUSINESS TELEPHONE:_____ FAX NUMBER:_____

CONTACT PERSON:_____

FEIN:_____* CORPORATE FILE NUMBER:_____

MANAGING MEMBER:_____ MANAGING MEMBER:_____

**SIGNATURE OF MANAGER: _____

ATTEST: _____

Subscribed and sworn to before me this

_____ day of _____, 20_____.

X_____ _____
Notary Public Signature Notary Seal

* **If the LLC is not registered in the State of Illinois, a copy of a current Certificate of Good Standing from the state of incorporation must be submitted with this Signature Page.**

** **Attach either a certified copy of the by-laws, articles, resolution or other authorization demonstrating such persons to sign the Signature Page on behalf of the LLC.**

SIGNATURE BY A CORPORATION
(SECTION 9)

The Undersigned hereby certifies and warrants: that all of the statements, certifications, and representations set forth in this EDS are true, complete and correct; that the Undersigned is in full compliance and will continue to be in compliance throughout the term of the Contract or County Privilege issued to the Undersigned with all the policies and requirements set forth in this EDS; and that all of the facts and information provided by the Undersigned in this EDS are true, complete and correct. The Undersigned agrees to inform the Chief Procurement Officer in writing if any of such statements, certifications, representations, facts or information becomes or is found to be untrue, incomplete or incorrect during the term of the Contract or County Privilege.

BUSINESS NAME: Meade, Inc.

BUSINESS ADDRESS: 9550 W. 55th Street, Suite A

Mccook, IL 60525

BUSINESS TELEPHONE: 708-588-2594 FAX NUMBER: 708-588-2501

CONTACT PERSON: Michael K. Knutson

FEIN: 27-4060761 *IL CORPORATE FILE NUMBER: 6762-295-2

LIST THE FOLLOWING CORPORATE OFFICERS:

CEO: Frank J. Lizzadro

PRESIDENT: Frank A. Lizzadro

VICE PRESIDENT: Joe VanGundy III, Daveid A. Leali, Michael K. Knutson

SECRETARY: John S. Lizzadro, Sr.

TREASURER: John S. Lizzadro, Sr.

**SIGNATURE OF ~~PRESIDENT~~ CEO

ATTEST: _____ / Ass't (CORPORATE SECRETARY)

Subscribed and sworn to before me this

13th day of September, 20 13.

My commission expires: 5/15/14

x _____
Notary Public Signature

Notary Seal

"OFFICIAL SEAL"
JOAN T. MASELLI
Notary Public, State of Illinois
My Commission Expires 05/15/14

* If the corporation is not registered in the State of Illinois, a copy of the Certificate of Good Standing from the state of incorporation must be submitted with this Signature Page.

** In the event that this Signature Page is signed by any persons than the President and Secretary, attach either a certified copy of the corporate by-laws, resolution or other authorization by the corporation, authorizing such persons to sign the Signature Page on behalf of the corporation.

RESOLUTION

I, ALAN L. SHULMAN, Asst. Secretary of MEADE, INC., do hereby certify that the following is a true and correct copy of a resolution duly adopted by the Board of Directors of MEADE, INC., on January 2, 2013 and that said resolution has not been rescinded.

Authorization to Sign Contracts

RESOLVED, that sales and consignment contracts, and bids therefor, including bids to and contracts with any Municipal, County or State government, or with the government of the United States, or with any agency or department of any such government, and bonds to secure the performance of such bids and contracts, may be executed on behalf of this Corporation by any one of the following:

CEO	-	FRANK J. LIZZADRO
PRESIDENT	-	FRANK A. LIZZADRO
VICE PRESIDENT	-	DAVID A. LEALI
VICE PRESIDENT	-	MICHAEL K. KNUTSON
VICE PRESIDENT	-	JOSEPH VAN GUNDY III
SECRETARY/TREASURER	-	JOHN S. LIZZADRO, SR.
ASSISTANT SECRETARY	-	ALAN L. SHULMAN
CONTRACT ADM.	-	JOHN S. GUZIK
SUPERINTENDENT	-	PAUL J. NABER
SENIOR ESTIMATOR	-	FRANK J. HUCKIN

FURTHER RESOLVED, that in conjunction with the above stated purpose and in corroboration with the above stated persons, the following are authorized to attest same.

CEO	-	FRANK J. LIZZADRO
PRESIDENT	-	FRANK A. LIZZADRO
VICE PRESIDENT	-	DAVID A. LEALI
VICE PRESIDENT	-	MICHAEL K. KNUTSON
VICE PRESIDENT	-	JOSEPH VAN GUNDY III
SECRETARY/TREASURER	-	JOHN S. LIZZADRO, SR.
ASSISTANT SECRETARY	-	ALAN L. SHULMAN
CONTRACT ADM.	-	JOHN S. GUZIK
SUPERINTENDENT	-	PAUL J. NABER

SENIOR ESTIMATOR	-	FRANK J. HUCKIN
EST. GROUP MANAGER	-	THEODORE C. CZAJA
ASST. EST. GROUP MGR	-	SCOTT M. SANSON
OFFICE MANAGER	-	JANET L. LABUHN
DIVISION SECRETARY	-	SANDRA A. JENKINS
GROUP SECRETARY	-	JOAN MASELLI

IN WITNESS WHEREOF, I have affixed my name as Secretary and have caused the corporate seal of the corporation to be hereunto affixed the 2ND day of January, 2013.

seal

Alan L. Shulman
Asst. Secretary

COOK COUNTY SIGNATURE PAGE
(SECTION 10)

ON BEHALF OF THE COUNTY OF COOK, A BODY POLITIC AND CORPORATE OF THE STATE OF ILLINOIS, THIS CONTRACT IS HEREBY EXECUTED BY:

_____
COOK COUNTY CHIEF PROCUREMENT OFFICER

DATED AT CHICAGO, ILLINOIS THIS 19 DAY OF NOVEMBER, 20 13.

IN THE CASE OF A BID PROPOSAL, THE COUNTY HEREBY ACCEPTS:

THE FOREGOING BID/PROPOSAL AS IDENTIFIED IN THE CONTRACT DOCUMENTS FOR CONTRACT NUMBER

1328-12938

OR

ITEM(S), SECTION(S), PART(S): _____

TOTAL AMOUNT OF CONTRACT: $ 2,616,855.72
(DOLLARS AND CENTS)

FUND CHARGEABLE: _____

APPROVED AS AMENDED
BY THE BOARD OF COOK COUNTY COMMISSIONERS

NOV 13 2013

COM _____

APPROVED AS TO FORM:

_____
ASSISTANT STATE'S ATTORNEY
(Required on contracts over $1,000,000.00)

JOINT VENTURE FORMS

Qualified contractors wishing to combine bidding capacity and bid items as joint ventures must submit the appropriate properly completed forms and include them in their bid. The required joint venture forms include: (1) the ORIGINAL *Affidavit of Availability* (BC 57); (2) the ORIGINAL *Joint Venture Minimum Declaration of Work*; and (3) the ORIGINAL *Joint Venture Certificate of Explanation and Justification.*

COOK COUNTY DEPARTMENT OF TRANSPORTATION AND HIGHWAYS
Joint Venture Certificate of Explanation & Justification

Bid Proposal Submission Date: _____
Item No.: _____
Joint Venture Name: _____
Managing Party: _____

Firm #1

Name: _____

Address: _____

Firm #2

Name: _____

Address:- _____

Firm #3

Name: _____

Address: _____

Instructions:

Indicate the circumstances which apply to the Joint Venture.

1) One or more firms do not have the required financial capacity.

Firm #1 Firm #2 Firm #3

Does not have sufficient available prequalification financial rating to perform the work.

1) One or more firms do not have the required work capacity.

Firm #1 Firm #2 Firm #3

Does not have sufficient available prequalification work ratings to perform fifty percent of the work.

2) One or more firms do not perform work in a majority of work categories required to complete the project.

Work categories not performed by the firm:

Firm #1 _____

Firm #2 _____

Firm #3 _____

3) Fifty-one percent (51%) common controlling ownership between firms.

Firm #1 Firm #2 Firm #3

has attached statement indicating the relationship of the firms.

4) Estimated quantity of asphalt for this item exceeds 10,000 tons.

5) Estimated quantity of concrete exceeds 5,000 cubic yards.

6) Estimated costs of project are less than $1,000,000.

I/WE being duly sworn do hereby declare the explanation and justification to be a true and correct statement.

I, WE being duly sworn, do hereby declare the explanation and justification to be a true and correct statement.

Firm #1
Name _____ Title _____
(Print)

_____
Signature (Proprietor, Partner, Officer or Director)

Subscribed and sworn to before me this _____ day of _____, 20 ___. (Notary Seal)

_____ My commission expires on _____
Notary Public

Firm #2
Name _____ Title _____
(Print)

_____
Signature (Proprietor, Partner, Officer or Director)

Subscribed and sworn to before me this _____ day of _____, 20 ___. (Notary Seal)

_____ My commission expires on _____
Notary Public

Firm #3
Name _____ Title _____
(Print)

_____
Signature (Proprietor, Partner, Officer or Director

Subscribed and sworn to before me this _____ day of _____, 20 ___. (Notary Seal)

_____ My commission expires on _____
Notary Public

COOK COUNTY DEPARTMENT OF TRANSPORTATION AND HIGHWAYS
Joint Venture Minimum Declaration of Work

Bid Proposal Submission Date: _____
Item No.: _____
Joint Venture Name: _____
Managing Party: _____

Firm #1

Name: _____

Address: _____

Firm #2

Name: _____

Address: _____

Firm #3

Name: _____

Address: _____

Instructions:

Indicate the percentage of work to be performed by each firm with their own forces.

	Firm #1	Firm #2	Firm #3
Earthwork	_____	_____	_____
Portland Cement Concrete Paving	_____	_____	_____
Bituminous Plant Mix	_____	_____	_____
Bituminous Aggregate Mixtures	_____	_____	_____
Miscellaneous Bituminous Paving	_____	_____	_____
Cleaning and Sealing Cracks & Joints	_____	_____	_____
Soil Stabilization and Modification	_____	_____	_____
Aggregate Bases and Surfaces	_____	_____	_____
Highway, Railroad & Waterway Structures	_____	_____	_____
Drainage	_____	_____	_____
Electrical	_____	_____	_____
Cover & Seal Coats	_____	_____	_____
Slurry Applications	_____	_____	_____
Miscellaneous Concrete Construction	_____	_____	_____
Landscaping	_____	_____	_____
Seeding & Sodding	_____	_____	_____
Vegetation Spraying	_____	_____	_____
Tree Trimming & Selective Tree Removal	_____	_____	_____

Fencing	_____	_____	_____
Guardrail	_____	_____	_____
Grouting	_____	_____	_____
Painting	_____	_____	_____
Signing	_____	_____	_____
Paint Pavement Marking	_____	_____	_____
Thermoplastic Pavement Marking	_____	_____	_____
Epoxy Pavement Marking	_____	_____	_____
Installation of Raised Pavement Markers	_____	_____	_____
Pavement Texturing & Surface Removal	_____	_____	_____
Cold Milling, Planning & Rototilling	_____	_____	_____
Erection	_____	_____	_____
Demolition	_____	_____	_____
Other	_____	_____	_____

I, WE being duly sworn, do hereby declare the explanation and justification to be a true and correct statement.

Firm #1

Name _____ Title _____
(Print)

_____
Signature (Proprietor, Partner, Officer or Director)

Subscribed and sworn to before me this _____ day of _____, 20 ___. (Notary Seal)

_____ My commission expires on _____
Notary Public

Firm #2

Name _____ Title _____
(Print)

_____
Signature (Proprietor, Partner, Officer or Director)

Subscribed and sworn to before me this _____ day of _____, 20 ___. (Notary Seal)

_____ My commission expires on _____
Notary Public

Firm #3

Name _____ Title _____
(Print)

_____
Signature (Proprietor, Partner, Officer or Director

Subscribed and sworn to before me this _____ day of _____, 20 ___. (Notary Seal)

_____ My commission expires on _____
Notary Public

This form must be submitted with the bid.

CONTRACTOR'S CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS

(SECTION 6)

To Contractor:

Date: September 13, 2013
Project Number: 1328-12938
Project Name Electrical and Mechanical Item MaintenanceVarious Location

1. If awarded the contract with the County of Cook for the construction of the above identified project, the undersigned agrees that:

   (a) The Labor Standards provisions of the Contract for Construction will be included in the aforesaid contract.

   (b) Correction of any infractions of the aforesaid conditions, including infractions by any of his Subcontractors and any lower tier subcontractors, is his responsibility.

2. He certifies that:

   (b) Neither he nor any firm, corporation, partnership or association in which he has a substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor, Part 5 (29CFR Part 5) or pursuant to the Section 3(a) of the Davis-Bacon Act, as amended [40 U.S.C. 276a-2(a)]

   (c) No part of the aforementioned Contract has been or will be subcontracted to any Subcontractor if such Subcontractor or any firm, corporation, partnership or association in which such Subcontractor has a substantial interest is designated as an ineligible Contractor pursuant to any of the aforementioned regulatory or statutory provisions.

3. He agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by his Subcontractor any lower tier subcontractor, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wages Requirements executed by the Subcontractors.

4. He certifies that:

   (a) The legal name and the business address of the undersigned are: Meade, Inc. 9550 W. 55th St., Suite A, McCook, IL 60525

   (b) The undersigned is (check one):
   - ____ Sole Proprietorship
   - ____ Partnership
   - X Corporation
   - ____ Other Organization (Describe)

   (c) The name, title and address of the owner, partners or officers of the undersigned are:

NAME	TITLE	ADDRESS
Frank J. Lizzadro	CEO	9550 W. 55th Street, Suite A, MCCook, IL 60525
Frank A. Lizzadro	President	Same as above
Michael K. Knutson	Vice President	Same as above
David A. Lealison	Vice President	Same as above
Joe VanGundy III	Vice President	Same as above
John S. Lizzadro	Sec'y & Treas.	2215 York Rd, Ste 304, Oakbrook, IL 60523

(d) The name and address of all other persons, both natural and corporate, having a substantial interest in the undersigned, and the nature of the interest are (if none, so state):

NAME	ADDRESS	NATURE OF INTEREST
None		

(e) The names and addresses and trade classifications of all other building construction contractors in which the undersigned has a substantial interest is (if none, so state):

NAME	ADDRESS	TRADE CLASSIFICATION
None		

Meade, Inc.
CONTRACTOR

DATE 9/13/13

X
SIGNATURE

SUBCONTRACTOR'S CERTIFICATION CONCERNING
LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS
(Section 6)

To Contractor:

Date: September 13, 2013
Project Number: Contract #1328-12938 - Section# 14-8EMIM-42-GM
Project Name Electrical & Mechanical Item Maintenance

1. The undersigned, if awarded a contract with Meade, Inc. (Contractor) for Electrical Construction - Furnish and Install LED Illuminated Street Signs (Nature of Work) in the amount of $189,800.00 in the construction of the above-identified project, certifies that:

   (a) The Labor Standards provisions of the Contract for Construction will be included in the aforesaid contract.

   (b) Neither he nor any firm, corporation, partnership or association in which he has a substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor, Part 5 (29CFR Part 5) or pursuant to the Section 3(a) of the Davis-Bacon Act, as amended [40 U.S.C. 276a-2(a)]

   (c) No part of the aforementioned Contract has been or will be subcontracted to any Subcontractor if such Subcontractor or any firm, corporation, partnership or association in which such Subcontractor has a substantial interest is designated as an ineligible Contractor pursuant to any of the aforementioned regulatory or statutory provisions.

2. He agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by his Subcontractor any lower tier subcontractor, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wages Requirements executed by the Subcontractors.

3. The workmen will report for duty on TBD (Date)

4. He certifies that:

   (a) The legal name and the business address of the undersigned are: City Lights, Ltd. 9993 Virginia Avenue Chicago Ridge, IL 60415

   (b) The undersigned is (check one):
   - ___ Sole Proprietorship
   - ___ Partnership
   - X Corporation
   - ___ Other Organization (Describe)

   (c) The name end address of the owner, partners or officers of the undersigned are:

NAME	TITLE	ADDRESS
Jacqueline Hoffman	President & Treasurer	9993 Virginia Avenue Chicago Ridge, IL 60415
John Candelaria	Sr. Vice President & Corporate Secretary	
Mark Candelaria	Vice President	

DATE 09/13/13

SUBCONTRACTOR - City Lights, Ltd.

By: X [signature]
Jacqueline Hoffman/President

SUBCONTRACTOR'S CERTIFICATION CONCERNING
LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS
(Section 6)

To Contractor:

Date: 8/26/13
Project Number: 1328-12938
Project Name Electrical and Mechanical Item Maintenance Various Locations

1. The undersigned, if awarded a contract with Meade, Inc. (Contractor) for Traffic Signal Maintenance and Relamp Traffic Signal Sections (Nature of Work)

nd Clean Lens, furnish & install LED's in the amount of $ 722,378.16 in the construction of the above-identified project, certifies that:

(a) The Labor Standards provisions of the Contract for Construction will be included in the aforesaid contract.

(b) Neither he nor any firm, corporation, partnership or association in which he has a substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor, Part 5 (29CFR Part 5) or pursuant to the Section 3(a) of the Davis-Bacon Act, as amended [40 U.S.C. 276a-2(a)]

(c) No part of the aforementioned Contract has been or will be subcontracted to any Subcontractor if such Subcontractor or any firm, corporation, partnership or association in which such Subcontractor has a substantial interest is designated as an ineligible Contractor pursuant to any of the aforementioned regulatory or statutory provisions.

2. He agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by his Subcontractor any lower tier subcontractor, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wages Requirements executed by the Subcontractors.

3. The workmen will report for duty on 1/1/2014 (Date)

4. He certifies that:

(a) The legal name and the business address of the undersigned are:

(b) The undersigned is (check one):
- ___ Sole Proprietorship
- ___ Partnership
- X Corporation
- ___ Other Organization (Describe)

(c) The name and address of the owner, partners or officers of the undersigned are:

NAME	TITLE	ADDRESS
Martha Taylor	President	4940 S Lake Shore Dr
Bryan Taylor	Vice President	7308 S Ridgeland
Kendra Dinkins	Treasurer	6937 S Merrill
Karen Michele Dinkins	Secretary	1628 E 70th St

SUBCONTRACTOR

DATE 8/26/13

Apprenticeship and Training Program

In accordance with the provisions of Section 30-22 (6) of the Illinois Procurement Code, the bidder certifies that it is a participant, either as an individual or as part of a group program, in the approved apprenticeship and training programs applicable to each type of work or craft that the bidder will perform with its own forces. The bidder further certifies for work that will be performed by subcontract that each of its subcontractors submitted for approved either (a) is, at the time of such bid, participating in an approved, applicable apprenticeship and training program; or (b) will, prior to commencement of performance of work pursuant to this centered, begin participation in an approved apprenticeship and training program applicable to the work of the subcontract. 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. Applicable apprenticeship and training programs are those that have been approved and registered with the United States Department of Labor. The bidder shall list in the space below, the official name of the 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 forces. Types of work or craft work 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 that does not have an applicable apprenticeship or training program. 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.

International Brotherhood of Electrical Workers

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. In order to fulfill this requirement, it shall not be necessary that an 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.

Bidding Supplemental

Each bidder shall furnish a financial statement and experience questionnaire and otherwise comply with all of the requirements of Article 102.01 of the Standard Specifications. Should the bidder not already have the required vehicles, equipment, personnel, shops and storage areas, the proposal shall include a plan for acquiring the necessary resources and conducting the work.

The prospective bidder shall, before submitting his bid, carefully examine the proposal form, plans, specifications, special provisions and form of contract and bond. He 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. In order to assist the Contractor with this requirement, site inspections can be conducted by Department personnel.

He shall be responsible for any preexisting maintenance deficiencies that may exist at the time this contract is awarded and his bid shall reflect these deficiencies. If the Department knows of any discrepancies, the Contractor will be notified by addendums. If this bid is accepted, he will be responsible for all errors in his proposal resulting from his failure or neglect to comply with these instructions. The Department will, in no case, be responsible for any change in anticipated profits resulting from such failure or neglect.

Quantities included for bidding are only estimated and actual quantities may vary. The pace of construction activities within the County as well as a numbers of other unpredictable factors will cause variances from these indicated quantities, both for routine maintenance pay items and non-routine pay items.

The Contractor's unit prices are expected to be realistic and no additional compensation will be allowed due to a variance in quantities; however the Engineer retains the right to seek a revised unit price where quantities exceed estimated quantities to the extent that additional economies of scale would be normal.

The bidder shall prepare an affidavit, to be included with his bid, that he has examined the contract proposal and has familiarized himself with all of the requirements of said contract, as well as all of the electrical and mechanical equipment, installations and systems covered by said contract, and that he has sufficient knowledge of the operational features of the equipment, installations and systems and the maintenance requirements to recognize fully the responsibilities conveyed by the award of said contract, and that if awarded to him he will be fully prepared to implement any and all provisions of said contract beginning January 1, 2014 at 12:01 a.m. without delay or interruption. The bidder shall also attach hereto the following items demonstrating his ability to fulfill the requirements of said contract:

- A list of the number, type, and size of each item of mobile equipment, including maximum service height on lift type vehicles, which will be used exclusively for this contract, whether this equipment is owned or is to be leased. All equipment is to have two-way mobile communication device. (Equipment shall have a phone with push to talk feature.)

- A list of the categories and number of persons in his employ who will be used exclusively for the prosecution of this contract.

- A description, including square footage, and location of the bidder's current headquarters, the spaces to be utilized for this Contract and any shop and storage facilities available for the prosecution of this contract and whether such facilities are owned or are to be leased.

BIDDER AFFIDAVIT

Bidder has furnished a financial statement and experience questionnaire and otherwise complied with all of the requirements of Article 102.01 of the Standard Specifications. Such document is a part of a complete Prequalification on file with Cook County.

Bidder has the required vehicles, equipment, personnel, shops and storage areas, required by the proposal.

Bidder has examined the contract proposal and has familiarized himself with all of the requirements of said contract, as well as all of the electrical and mechanical equipment, installations and systems covered by said contract, and that he has sufficient knowledge of the operational features of the equipment, installations and systems and the maintenance requirements to recognize fully the responsibilities conveyed by the award of said contract, and that if awarded to him he will be fully prepared to implement any and all provisions of said contract beginning January 1, 2014 at 12:01 a.m. without delay or interruption.

Contractor currently holds this contract and certifies there will be no changes to items listed below:

- Number, type, and size of each item of mobile equipment, including maximum service height on lift type vehicles, which will be used exclusively for this contract, whether this equipment is owned or is to be leased. All equipment has two-way radios installed.
- The categories and number of persons in Meade employ will be used exclusively for the prosecution of this contract.
- Square footage, and location of the bidder's current headquarters, the spaces to be utilized for
- this Contract and any shop and storage facilities available for the prosecution of this contract
- and such facilities are owned or leased.
- Two-way mobile communication system and staffing plan for the dispatch center.
- The test facilities available within his Company to overhaul and bench test all electromechanical,
- solid state, microprocessor, analog and digital control equipment
- The qualifications of the personnel who will be engaged in the testing and overhaul of the control
- equipment.
- The number of Patrol Vehicles in use in the bidder's current operations, and the number of new
- Patrol Vehicles to be purchased or leased to meet the requirements of this Contract.

CONTRACTOR: Meade, Inc.

BY: _____
Frank J. Lizzadro
CEO

Subscribed and sworn to before me this 13th day of September, 2013.

(Notary Signature) (Notary Seal)

"OFFICIAL SEAL"
JOAN T. MASELLI
Notary Public, State of Illinois
My Commission Expires 06/15/14

Illinois Department of Transportation

Certificate of Eligibility

Contractor No 3948

Meade, Inc.
2215 South York Road, Suite 304 Oak Brook, IL 60523-4004

WHO HAS FILED WITH THE DEPARTMENT AN APPLICATION FOR PREQUALIFICATION STATEMENT OF EXPERIENCE, EQUIPMENT AND FINANCIAL CONDITION IS HEREBY QUALIFIED TO BID AT ANY OF DEPARTMENT OF TRANSPORTATION LETTINGS IN THE CLASSES OF WORK AND WITHIN THE AMOUNT AND OTHER LIMITATIONS OF EACH CLASSIFICATION, AS LISTED BELOW, FOR SUCH PERIOD AS THE UNCOMPLETED WORK FROM ALL SOURCES DOES NOT EXCEED. SUPER UNLIMITED

001	EARTHWORK	Unlimited
012	DRAINAGE	$3,950,000
014	ELECTRICAL	Unlimited
017	CONCRETE CONSTRUCTION	$1,200,000

THIS CERTIFICATE OF ELIGIBILITY IS VALID FROM 5/2/2013 TO 4/30/2014 INCLUSIVE, AND SUPERSEDES ANY CERTIFICATE PREVIOUSLY ISSUED, BUT IS SUBJECT TO REVISION OR REVOCATION, IF AND WHEN CHANGES IN THE FINANCIAL CONDITION OF THE CONTRACTING FIRM OR OTHER FACTS JUSTIFY SUCH REVISIONS OR REVOCATION.
ISSUED AT SPRINGFIELD, ILLINOIS ON 5/2/2013.

Michael W Burns
Acting Engineer of Construction

IL 494-0645

Illinois Department of Transportation

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

Affidavit of Availability

For the Letting of 9/13/2013
(Letting date)

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	
County and Section Number	COOK	VARIOUS	VARIOUS 60P97	Cook 2009-139-SG	Cook 2009-1121	
Contract With	12-8EMIN-40-GM	Villages	IDOT	IDOT 60K06	IDOT 60J24	
Estimated Completion Date	12/2013	12/2013	12/2014	12/2013	12/2013	
Total Contract Price	2,477,924.32	6,500,000.00	26,994,937.00	2,998,821.00	2,089,257.00	Accumulated Totals
Uncompleted Dollar Value if Firm is the Prime Contractor	900,000.00	2,300,000.00	9,000,000.00	838,753.58	508,869.70	13,547,623.28
Uncompleted Dollar Value if Firm is the Subcontractor						0.00
				Total Value of All Work		13,547,623.28

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						0.00
Portland Cement Concrete Paving						0.00
HMA Plant Mix						0.00
HMA Paving						0.00
Clean & Seal Cracks/Joints						0.00
Aggregate Bases & Surfaces						0.00
Highway,R.R. and Waterway Structures						0.00
Drainage						0.00
Electrical	1,859,924.00	4,200,000.00	710,299.00	17,255,208.00		24,025,431.00
Cover and Seal Coats						0.00
Concrete Construction						0.00
Landscaping						0.00
Fencing						0.00
Guardrail						0.00
Painting						0.00
Signing						0.00
Cold Milling, Planning & Rotomilling						0.00
Demolition						0.00
Pavement Markings (Paint)						0.00
Other Construction (List)						0.00
						0.00
						0.00
Totals	1,859,924.00	4,200,000.00	710,299.00	17,255,208.00	0.00	24,025,431.00

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.

Illinois Department of Transportation

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

Affidavit of Availability

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(Letting date)

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	1	2	3	4		
County and Section Number	**Marion,IN**	**Kane**	**08-0001**	**RR-12-5655**	**RR-13-4095**	
Contract With	IPL	IDOT 63648	**Tollway ITS**	RTMS	**355/88**	
Estimated Completion Date	**3/2014**	**12/2013**	**2/2014**	**12/2013**	**11/2013**	
Total Contract Price	**4,000,000.00**	**1,186,207.80**	**900,000.00**	**701,000.00**	**2,400,000.00**	**Accumulated Totals**
Uncompleted Dollar Value if Firm is the Prime Contractor	**1,500,000.00**	**154,207.01**	**700,000.00**	**400,000.00**	**1,920,000.00**	**18,221,830.29**
Uncompleted Dollar Value if Firm is the Subcontractor						**0.00**
				Total Value of All Work		**18,221,830.29**

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						**0.00**
Portland Cement Concrete Paving						**0.00**
HMA Plant Mix						**0.00**
HMA Paving						**0.00**
Clean & Seal Cracks/Joints						**0.00**
Aggregate Bases & Surfaces						**0.00**
Highway,R.R. and Waterway Structures						**0.00**
Drainage						**0.00**
Electrical	**233,534.00**	**200,000.00**	**1,702,804.00**	**1,334,000.00**		**27,495,769.00**
Cover and Seal Coats						**0.00**
Concrete Construction						**0.00**
Landscaping						**0.00**
Fencing						**0.00**
Guardrail						**0.00**
Painting						**0.00**
Signing						**0.00**
Cold Milling, Planning & Rotomilling						**0.00**
Demolition						**0.00**
Pavement Markings (Paint)						**0.00**
Other Construction (List)						**0.00**
						0.00
						0.00
Totals	**233,534.00**	**200,000.00**	**1,702,804.00**	**1,334,000.00**	**0.00**	**27,495,769.00**

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Illinois Department of Transportation

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

Affidavit of Availability

For the Letting of 9/13/2013
(Letting date)

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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	
County and Section Number	13-OPR-03	I-80	IL 21	Skokie		
Contract With	Dist 2-5 Maint	IDOT 60V81	IDOT 60R44	IDOT 60R47		
Estimated Completion Date	10/10/14	11/13	6/14	6/14		
Total Contract Price	243,651.00	595,412.41	1,995,575.71	1,411,942.60		Accumulated Totals
Uncompleted Dollar Value if Firm is the Prime Contractor	140,185.00	351,473.37	1,573,189.81	1,053,952.65		21,340,631.12
Uncompleted Dollar Value if Firm is the Subcontractor						0.00
				Total Value of All Work		21,340,631.12

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						0.00
Portland Cement Concrete Paving						0.00
HMA Plant Mix						0.00
HMA Paving						0.00
Clean & Seal Cracks/Joints						0.00
Aggregate Bases & Surfaces						0.00
Highway,R.R. and Waterway Structures						0.00
Drainage						0.00
Electrical	2,000,000.00	225,000.00	220,000.00	200,000.00		30,140,769.00
Cover and Seal Coats						0.00
Concrete Construction						0.00
Landscaping						0.00
Fencing						0.00
Guardrail						0.00
Painting						0.00
Signing						0.00
Cold Milling, Planning & Rotomilling						0.00
Demolition						0.00
Pavement Markings (Paint)						0.00
Other Construction (List)						0.00
						0.00
						0.00
Totals	2,000,000.00	225,000.00	220,000.00	200,000.00	0.00	30,140,769.00

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.

- A description of his two-way mobile communication system and staffing plan for the dispatch center.
- A description of the test facilities available within his Company to overhaul and bench test all electromechanical, solid state, microprocessor, analog and digital control equipment.
- A description of the qualifications of the personnel who will be engaged in the testing and overhaul of the control equipment.
- A report which provides the number of Patrol Vehicles in use in the bidder's current operations, and the number of new Patrol Vehicles to be purchased or leased to meet the requirements of this Contract.

NOTICE TO CONTRACTOR

Any erasures or alterations in the unit prices and/or in the products of the respective quantities and unit prices in the Proposal, must be properly authenticated by the Bidder by initialing in ink such erasures or alterations to avoid cause for rejection of the Proposal in accordance with Article 102 of the Standard Specifications for Road and Bridge Construction, latest edition.

The Contractor, for specified unit prices listed under the Schedule of Prices, shall conform to all requirements as specified herein these articles. Each pay item shall have a unit price and a total price. The unit prices bid are in U.S. dollars and cents. The unit price shall govern if no total price is shown or if there is a discrepancy between the product of the unit price multiplied by the quantity. If a unit price is omitted, the total price will be divided by the quantity in order to establish a unit price. A bid will be declared unacceptable if neither unit price nor a total price is shown.

The Department is under no obligation to authorize non-routine pay item work. Non-routine work will be authorized based on preventative maintenance assessments, ongoing operational needs and system inspections.

The quantities shown in the Schedule of Prices reflects the total number of Traffic Signal Systems, Street and Roadway Lighting Systems, Navigation Lighting Systems, Bridge Cathodic Protection Systems, Storm Water Pumping Station Systems, and Maintenance Facilities Electrical Systems anticipated to be maintained and the anticipated quantities for Specialty Items to be used for the duration of this Contract. The attached List of Locations indicates the Traffic Signal Installations, Street and Roadway Lighting Systems, Navigation Lighting Systems, Bridge Cathodic Protection Systems, Storm Water Pumping Station Systems, and Maintenance Facilities Electrical Systems currently being maintained by the Cook County Department of Transportation and Highways as of April 1, 2013.

All installations listed on the Maintenance Listing elsewhere in this Contract, and any additions given to the Contractor before December 31, 2013 will be accepted by the Contractor as is.

The Contractor will only be paid for the maintenance of each Traffic Signal System, Street and Roadway Lighting System, Navigation Lighting System, Bridge Cathodic Protection System, Storm Water Pumping Station System, and Maintenance Facilities Electrical Systems actually maintained and each Specialty Item actually used and will be notified in writing which items are to be billed.

ADDENDUM RECEIPT ACKNOWLEDGMENT

The receipt of the following addenda to the drawings and/or specification is acknowledged:

Addendum No. 1
Dated August 28, 2013

Addendum No. _____
Dated _____

Addendum No. _____
Dated _____

Addendum No. _____
Dated _____

Addendum No. _____
Dated _____

NOTE: These Addenda form a part of the Bidding and Contract Documents and modify the Original Documents for this Contract. Receipt of these Addenda shall be acknowledged above. Failure to do so may subject the Bidder to disqualification.

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					
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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	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

I, being duly sworn, do hereby declare 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 13th day of _September, 2013__.

Joan T. Maselli
Notary Public

My commission expires: 5/15/14

(Notary Seal)

"OFFICIAL SEAL"
JOAN T. MASELLI
Notary Public, State of Illinois
My Commission Expires 05/15/14

Type or Print Name Michael K. Knutson — Vice President
Officer or Director — Title

Signed M. K. K.

Company Meade, Inc.

Address 9500 W. Street Suite A
McCook, IL 60525

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014
Various Locations
Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
TRAFFIC SIGNAL ROUTINE MAINTENANCE ITEMS:				PER MONTH PER INSTALLATION	
A-1	320	EACH	TRAFFIC SIGNAL INSTALLATION	$ 467.00	149,440.00
A-2	10	EACH	TEMPORARY TRAFFIC SIGNAL INSTALLATION	$ 4.00	$ 40.00
A-3	5	EACH	FLASHING BEACON INSTALLATION - OVERHEAD	$ 4.00	$ 20.00
A-4	50	EACH	FLASHING BEACON INSTALLATION - POST MOUNTED	$ 4.00	$ 200.00
A-5	25	EACH	SOLAR FLASHING BEACON INSTALLATION - POST MOUNTED	$ 4.00	$ 100.00
A-6	3	EACH	RETANGULAR RAPID FLASHING BEACON	$ 25.00	$ 75.00
A-7	4	EACH	SPEED SIGN INSTALLATION	$ 20.00	$ 80.00
A-8	1	EACH	ADVANCED RAILROAD WARNING SYSTEM	$ 30.00	$ 30.00
A-9	1	EACH	CLOSED LOOP SYSTEM MONITORING	$ 10,400.00	$ 10,400.00
TRAFFIC SIGNAL SPECIALTY ITEMS:				UNIT COST	
AX-1	40	EACH	PAINT TRAFFIC SIGNAL INSTALLATION	$ 500.00	$ 20,000.00
AX-2	10	EACH	PAINT FLASHING BEACON INSTALLATION	$ 10.00	$ 100.00
AX-3	5	EACH	PAINT TEMPORARY TRAFFIC SIGNAL INSTALLATION	$ 10.00	$ 50.00
AX-4	5	EACH	PAINT TRAFFIC SIGNAL CONTROLLER CABINET	$ 25.00	$ 125.00
AY-1	10	EACH	TEMPORARY TRAFFIC SIGNAL INSTALLATION TYPE - 1	$ 100.00	$ 1,000.00
AY-2	5	EACH	TEMPORARY TRAFFIC SIGNAL INSTALLATION TYPE - 2	$ 300.00	$ 1,500.00
AY-3	10	EACH	REMOVE TEMPORARY TRAFFIC SIGNAL INSTALLATION	$ 20.00	$ 200.00
AZ-1	2	EACH	FULL ACTUATED CONTROLLER, IN TYPE III CABINET	$ 20.00	$ 40.00
AZ-2	10	EACH	FULL ACTUATED CONTROLLER, IN TYPE IV CABINET	$ 500.00	$ 5,000.00
AZ-3	10	EACH	FULL ACTUATED CONTROLLER, IN TYPE V CABINET	$ 250.00	$ 2,500.00
AZ-4	3	EACH	FULL ACTUATED CONTROLLER, IN TYPE IV CABINET - RAILROAD	$ 1,000.00	$ 3,000.00
AZ-5	10	EACH	FULL ACTUATED CONTROLLER, IN EXISTING CABINET	$ 200.00	$ 2,000.00
AZ-6	3	EACH	FLASHER CONTROLLER WITHOUT CABINET, SOLID STATE - NEMA	$ 10.00	$ 30.00
AZ-7	30	EACH	TRAFFIC SIGNAL CABINET LOAD SWITCH	$ 18.00	$ 540.00
AZ-8	25	EACH	INDUCTIVE LOOP DETECTOR	$ 30.00	$ 750.00
AZ-9	2	EACH	CABINET FOR EXISTING TRAFFIC SIGNAL CONTROLLER, TYPE III	$ 10.00	$ 20.00
AZ-10	2	EACH	CABINET FOR EXISTING TRAFFIC SIGNAL CONTROLLER, TYPE IV	$ 20.00	$ 40.00
AZ-11	2	EACH	CABINET FOR EXISTING TRAFFIC SIGNAL CONTROLLER, TYPE V	$ 20.00	$ 40.00
AZ-12	10	EACH	INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER CABINET	$ 20.00	$ 200.00
AZ-13	10	EACH	INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER	$ 5.00	$ 50.00
AZ-14	10	EACH	MODIFY EXISTING TRAFFIC SIGNAL CONTROLLER, PER PHASE	$ 10.00	$ 100.00

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
AZ-15	20	EACH	UPDATED PROM SET AT EXISTING LOCAL OR MASTER CONTROLLER	$ 10.00	$ 200.00
AZ-16	3	EACH	MASTER CONTROLLER	$ 1,000.00	$ 3,000.00
AZ-17	25	EACH	SYSTEM PROGRAMMING	$ 50.00	$ 1,250.00
AZ-18	36	EACH	CONTROLLER DATA CONVERSION	$ 25.00	$ 900.00
AZ-19	3	EACH	TRANSCEIVER	$ 5.00	$ 15.00
AZ-20	20	EACH	TRANSCEIVER, FIBER OPTIC	$ 10.00	$ 200.00
AZ-21	2	EACH	DIGITAL TIME SWITCH	$ 10.00	$ 20.00
AZ-22	10	EACH	CONFLICT MONITOR	$ 300.00	$ 3,000.00
AZ-23	5	EACH	POLICE DOOR MANUAL CONTROL	$ 20.00	$ 100.00
AZ-24	8	EACH	LIGHT DETECTOR AMPLIFIER	$ 15.00	$ 120.00
AZ-25	16	EACH	LIGHT DETECTOR	$ 15.00	$ 240.00
AZ-26	5	EACH	CONFIRMATION BEACON SYSTEM, LED	$ 200.00	$ 1,000.00
AZ-27	5	EACH	RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT	$ 10.00	$ 50.00
AZ-28	10	EACH	RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT	$ 10.00	$ 100.00
AZ-29	2	EACH	LIGHT TRANSMITTER	$ 10.00	$ 20.00
AZ-30	2000	FOOT	ELECTRIC CABLE IN CONDUIT NO. 20 3C, TWISTED AND SHIELDED	$ 0.10	$ 200.00
AZ-31	5	EACH	VIDEO DETECTION SYSTEM, COMPLETE INTERSECTION	$ 500.00	$ 2,500.00
AZ-32	10	EACH	VIDEO DETECTION SYSTEM, (SINGLE CAMERA/PROCESSOR)	$ 250.00	$ 2,500.00
AZ-33	6000	FOOT	DETECTOR LOOP, TYPE I	$ 1.00	$ 6,000.00
AZ-34	500	FOOT	DETECTOR LOOP, PRE-FORMED	$ 1.00	$ 500.00
AZ-35	2	EACH	WIRELESS DETECTION SYSTEM, COMPLETE INTERSECTION	$ 250.00	$ 500.00
AZ-36	4	EACH	WIRELESS DETECTION SYSTEM, SINGLE APPROACH	$ 100.00	$ 400.00
AZ-37	10	EACH	RADAR PRESENCE DETECTOR	$ 250.00	$ 2,500.00
AZ-38	2	EACH	WIRELESS INTERCONNECT SYSTEM	$ 250.00	$ 500.00
AZ-39	12	EACH	INSTALL TRAFFIC SIGNAL SECTION	$ 2.00	$ 24.00
AZ-40	12	EACH	INSTALL TRAFFIC SIGNAL LENS	$ 1.00	$ 12.00
AZ-41	10	EACH	SIGNAL HEAD, 1-FACE, 3 SECTION	$ 10.00	$ 100.00
AZ-42	5	EACH	SIGNAL HEAD, 1-FACE, 4 SECTION	$ 10.00	$ 50.00
AZ-43	10	EACH	SIGNAL HEAD, 1-FACE, 5 SECTION	$ 10.00	$ 100.00
AZ-44	5	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, 1-FACE, 3-SECTION	$ 10.00	$ 50.00
AZ-45	2	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, 1-FACE, 4-SECTION	$ 10.00	$ 20.00
AZ-46	5	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, 1-FACE, 5-SECTION	$ 10.00	$ 50.00

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
AZ-47	5	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, REMOTELY STEERABLE OPTICS, LED, 1-FACE, 3-SECTION	$ 100.00	$ 500.00
AZ-48	2	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, REMOTELY STEERABLE OPTICS, LED, 1-FACE, 4-SECTION	$ 10.00	$ 20.00
AZ-49	5	EACH	OPTICALLY PROGRAMMED SIGNAL HEAD, REMOTELY STEERABLE OPTICS, LED, 1-FACE, 5-SECTION	$ 100.00	$ 500.00
AZ-50	10	EACH	PEDESTRIAN SIGNAL HEAD, 1-FACE	$ 10.00	$ 100.00
AZ-51	10	EACH	SIGNAL HEAD, LED, 1-FACE, 1-SECTION	$ 50.00	$ 500.00
AZ-52	30	EACH	SIGNAL HEAD, LED, 1-FACE, 3-SECTION	$ 150.00	$ 4,500.00
AZ-53	8	EACH	SIGNAL HEAD, LED, 1-FACE, 4-SECTION	$ 100.00	$ 800.00
AZ-54	30	EACH	SIGNAL HEAD, LED, 1-FACE, 5-SECTION	$ 200.00	$ 6,000.00
AZ-55	10	EACH	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE	$ 200.00	$ 2,000.00
AZ-56	20	EACH	SIGNAL HEAD, LED, 1-FACE, 1-SECTION, RETROFIT	$ 40.00	$ 800.00
AZ-57	20	EACH	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, RETROFIT	$ 90.00	$ 1,800.00
AZ-58	8	EACH	SIGNAL HEAD, LED, 1-FACE, 4-SECTION, RETROFIT	$ 100.00	$ 800.00
AZ-59	20	EACH	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, RETROFIT	$ 150.00	$ 3,000.00
AZ-60	10	EACH	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, RETROFIT	$ 90.00	$ 900.00
AZ-61	20	EACH	CONFIRMATION BEACON, RETROFIT	$ 50.00	$ 1,000.00
AZ-62	30	EACH	PEDESTRIAN COUNTDOWN SIGNAL HEAD, LED, 1-FACE	$ 300.00	$ 9,000.00
AZ-63	8	EACH	ACCESSIBLE PEDESTRIAN SIGNAL	$ 100.00	$ 800.00
AZ-64	4	EACH	ILLUMINATED SIGN, LED	$ 2,000.00	$ 8,000.00
AZ-65	40	EACH	ILLUMINATED STREET NAME SIGN, LED (4 Foot)	$ 25.00	$ 1,000.00
AZ-66	40	EACH	ILLUMINATED STREET NAME SIGN, LED (6 Foot)	$ 750.00	$ 30,000.00
AZ-67	40	EACH	ILLUMINATED STREET NAME SIGN, LED (8 Foot)	$ 1,000.00	$ 40,000.00
AZ-68	16	EACH	RELOCATE ILLUMINATED STREET NAME SIGN	$ 50.00	$ 800.00
AZ-69	50	EACH	TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	$ 5.00	$ 250.00
AZ-70	30	EACH	TRAFFIC SIGNAL BACKPLATE, REFLECTIVE	$ 70.00	$ 2,100.00
AZ-71	10	EACH	FLASHING BEACON, LOW MOUNTED, ONE FACE	$ 30.00	$ 300.00
AZ-72	5	EACH	FLASHING BEACON, SPAN WIRE MOUNTED, ANY NUMBER OF FACES AS ONE SIGNAL HEAD	$ 40.00	$ 200.00
AZ-73	4	EACH	FLASHING BEACON, LOW MOUNTED, ONE FACE, SOLAR POWERED	$ 100.00	$ 400.00
AZ-74	4	EACH	FLASHING BEACON, LOW MOUNTED, ONE FACE, SOLAR POWERED WITH PROGRAMMABLE TIME CLOCK	$ 1,200.00	$ 4,800.00
AZ-75	20	EACH	UNINTERRUPTIBLE POWER SUPPLY SYSTEM INSTALLATION	$ 3,000.00	$ 60,000.00
AZ-76	30	EACH	RELOCATE EXISTING TRAFFIC SIGNAL HEAD	$ 2.00	$ 60.00
AZ-77	2	EACH	RELOCATE EXISTING TRAFFIC SIGNAL POST	$ 5.00	$ 10.00
AZ-78	20	EACH	TRAFFIC SIGNAL POST, 3' TO 18' LONG	$ 300.00	$ 6,000.00

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
AZ-79	5	EACH	PEDESTRIAN PUSHBUTTON POST	$ 5.00	$ 25.00
AZ-80	20	EACH	PEDESTRIAN PUSHBUTTON	$ 50.00	$ 1,000.00
AZ-81	1	EACH	STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 16' TO 28')	$ 100.00	$ 100.00
AZ-82	1	EACH	STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 30' TO 44')	$ 100.00	$ 100.00
AZ-83	1	EACH	STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 46' TO 55')	$ 100.00	$ 100.00
AZ-84	1	EACH	STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 56' TO 65')	$ 100.00	$ 100.00
AZ-85	1	EACH	STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 66' TO 75')	$ 100.00	$ 100.00
AZ-86	2	EACH	INSTALL EXISTING MAST ARM ASSEMBLY AND POLE	$ 20.00	$ 40.00
AZ-87	2	EACH	REMOVE EXISTING MAST ARM ASSEMBLY AND POLE	$ 10.00	$ 20.00
AZ-88	2	EACH	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	$ 10.00	$ 20.00
AZ-89	4	EACH	REMOVE EXISTING TRAFFIC SIGNAL HEAD	$ 1.00	$ 4.00
AZ-90	4	EACH	REMOVE EXISTING TRAFFIC SIGNAL SECTION	$ 1.00	$ 4.00
AZ-91	20	EACH	REMOVE EXISTING TRAFFIC SIGNAL POST	$ 1.00	$ 20.00
AZ-92	3000	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL - NO. 14 2C	$ 0.02	$ 60.00
AZ-93	3000	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL - NO. 14 3C	$ 0.03	$ 90.00
AZ-94	3000	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL - NO. 14 5C	$ 0.05	$ 150.00
AZ-95	3000	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL - NO. 14 7C	$ 0.07	$ 210.00
AZ-96	5000	FOOT	ELECTRIC CABLE IN CONDUIT, LEAD IN - NO. 14 1 PAIR	$ 0.20	$ 1,000.00
AZ-97	500	FOOT	ELECTRIC CABLE IN CONDUIT, SERVICE - NO. 4 2C	$ 0.40	$ 200.00
AZ-98	500	FOOT	ELECTRIC CABLE IN CONDUIT, SERVICE - NO. 6 2C	$ 0.25	$ 125.00
AZ-99	14000	FOOT	ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 14 3C, TYPE SOOW	$ 0.70	$ 9,800.00
AZ-100	3000	FOOT	ELECTRIC CABLE IN CONDUIT, COMMUNICATION - NO. 18 3 PAIR	$ 0.01	$ 30.00
AZ-101	500	FOOT	ELECTRIC CABLE IN CONDUIT, RAILROAD - NO. 14 3C	$ 0.90	$ 450.00
AZ-102	3000	FOOT	ELECTRIC CABLE IN CONDUIT, VIDEO DETECTOR	$ 0.20	$ 600.00
AZ-103	500	FOOT	ELECTRIC CABLE - AERIAL, NO. 4, 2C	$ 0.02	$ 10.00
AZ-104	500	FOOT	ELECTRIC CABLE - AERIAL, NO. 6, 2C	$ 0.02	$ 10.00
AZ-105	2000	FOOT	ELECTRIC CABLE - AERIAL, NO. 14, 2C	$ 0.02	$ 40.00
AZ-106	2000	FOOT	ELECTRIC CABLE - AERIAL, NO. 14, 3C	$ 0.02	$ 40.00
AZ-107	3000	FOOT	ELECTRIC CABLE - AERIAL, NO. 14, 5C	$ 0.02	$ 60.00
AZ-108	3000	FOOT	ELECTRIC CABLE - AERIAL, NO. 14, 7C	$ 0.02	$ 60.00
AZ-109	3000	FOOT	ELECTRIC CABLE - AERIAL,LEAD IN - NO. 14, 2C, TWISTED AND SHIELDED	$ 0.02	$ 60.00

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
AZ-110	2000	FOOT	ELECTRIC CABLE, RADAR PRESENCE DETECTOR	$ 0.50	$ 1,000.00
AZ-111	5000	FOOT	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125 MM 12F SM 24F	$ 0.50	$ 2,500.00
AZ-112	3000	FOOT	FIBER OPTIC CABLE - AERIAL, NO. 62.5/125 MM 12F SM 24F	$ 1.00	$ 3,000.00
AZ-113	5000	FOOT	ELECTRIC CABLE IN CONDUIT, TRACER NO. 14 1C	$ 0.01	$ 50.00
AZ-114	30	EACH	SPLICE FIBER IN CABINET	$ 40.00	$ 1,200.00
AZ-115	1000	FOOT	ELECTRIC CABLE IN CONDUIT, GROUNDING NO. 6 1C	$ 0.60	$ 600.00
AZ-116	25	EACH	GROUNDING EXISTING HANDHOLE FRAME AND COVER	$ 100.00	$ 2,500.00
AZ-117	40	FOOT	CONCRETE FOUNDATION, TYPE A	$ 25.00	$ 1,000.00
AZ-118	40	FOOT	CONCRETE FOUNDATION, TYPE C	$ 25.00	$ 1,000.00
AZ-119	20	FOOT	CONCRETE FOUNDATION, TYPE D	$ 25.00	$ 500.00
AZ-120	60	FOOT	CONCRETE FOUNDATION, TYPE E (30", 36" OR 42")	$ 50.00	$ 3,000.00
AZ-121	5	EACH	MODIFY EXISTING TYPE D FOUNDATION	$ 25.00	$ 125.00
AZ-122	100	FOOT	PAVEMENT MARKING LINE 24 INCH	$ 0.50	$ 50.00
LIGHTING ROUTINE MAINTENANCE ITEMS:				PER MONTH PER INSTALLATION	
B-1a	25	EACH	LIGHTING UNIT, LESS THAN 38 FEET, MERCURY VAPOR	$ 3.00	$ 75.00
B-1b	1	EACH	LIGHTING UNIT, LESS THAN 38 FEET, INCANDESCENT	$ 4.00	$ 4.00
B-1c	1	EACH	LIGHTING UNIT, LESS THAN 38 FEET, FLUORESCENT	$ 0.01	$ 0.01
B-1d	150	EACH	LIGHTING UNIT, LESS THAN 38 FEET, HIGH PRESSURE SODIUM	$ 9.00	$ 1,350.00
B-1e	100	EACH	LIGHTING UNIT, LESS THAN 38 FEET, LOW PRESSURE SODIUM	$ 0.05	$ 5.00
B-1f	60	EACH	LIGHTING UNIT, LESS THAN 38 FEET, METAL HALIDE	$ 0.05	$ 3.00
B-1g	6	EACH	LIGHTING UNIT, LESS THAN 38 FEET, LED	$ 1.00	$ 6.00
B-2a	1	EACH	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET, MERCURY VAPOR	$ 0.10	$ 0.10
B-2b	1	EACH	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET, INCANDESCENT	$ 0.10	$ 0.10
B-2c	70	EACH	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET, HIGH PRESSURE SODIUM	$ 0.05	$ 3.50
B-2d	1	EACH	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET, METAL HALIDE	$ 0.10	$ 0.10
B-2e	10	EACH	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET, LED	$ 0.10	$ 1.00
B-3a	2	EACH	LIGHTING UNIT, 80 FEET OR MORE, HIGH PRESSURE SODIUM	$ 40.00	$ 80.00
B-3b	1	EACH	LIGHTING UNIT, 80 FEET OR MORE, METAL HALIDE	$ 1.00	$ 1.00
LIGHTING SPECIALTY ITEMS:				UNIT COST	
BU-1	5	EACH	REPLACE LIGHT STANDARD SHAFT (LABOR ONLY)	$ 5.00	$ 25.00
BU-2	5	EACH	REPLACE ONE OR TWO MAST ARMS ON ONE LIGHT STANDARD (LABOR ONLY)	$ 5.00	$ 25.00

(CONTINUED ON NEXT PAGE)

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

CONTRACTOR NAME:

SCHEDULE OF PRICES

Section No.: 14-8EMIM-42-GM

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
BU-3	1	EACH	REPLACE TRANSFORMER BASE (LABOR ONLY)	$ 200.00	$ 200.00
BU-4	5	EACH	REPLACE ONE OR TWO LUMINAIRES ON ONE LIGHT STANDARD (LABOR ONLY)	$ 5.00	$ 25.00
BU-5a	5	EACH	FURNISH LIGHT STANDARD SHAFT 32' OR LESS, 8" DIA. (MATERIAL ONLY)	$ 200.00	$ 1,000.00
BU-5b	1	EACH	FURNISH LIGHT STANDARD SHAFT 33' OR MORE, 8" DIA. (MATERIAL ONLY)	$ 200.00	$ 200.00
BU-5c	1	EACH	FURNISH LIGHT STANDARD SHAFT 40' OR LESS, 10" DIA. (MATERIAL ONLY)	$ 200.00	$ 200.00
BU-5d	5	EACH	FURNISH LIGHT STANDARD SHAFT 41' OR MORE, 10" DIA. (MATERIAL ONLY)	$ 200.00	$ 1,000.00
BU-5e	1	EACH	FURNISH LIGHT STANDARD SHAFT 80' OR MORE, GREATER THAN 10" DIA. (MATERIAL ONLY)	$ 200.00	$ 200.00
BU-6a	2	EACH	FURNISH MAST ARM 10' OR LESS (MATERIAL ONLY)	$ 50.00	$ 100.00
BU-6b	3	EACH	FURNISH MAST ARM 11' OR MORE (MATERIAL ONLY)	$ 5.00	$ 15.00
BU-7a	10	EACH	FURNISH LUMINAIRE AND LAMP, MERCURY VAPOR, 175W TO 400W (MATERIAL ONLY)	$ 10.00	$ 100.00
BU-7b	1	EACH	FURNISH LUMINAIRE AND LAMP, MERCURY VAPOR, 1000W (MATERIAL ONLY)	$ 20.00	$ 20.00
BU-7c	10	EACH	FURNISH LUMINAIRE AND LAMP, HIGH PRESSURE SODIUM, UNDER 200W (MATERIAL ONLY)	$ 50.00	$ 500.00
BU-7d	10	EACH	FURNISH LUMINAIRE AND LAMP, HIGH PRESSURE SODIUM, 200W TO 400W (MATERIAL ONLY)	$ 15.00	$ 150.00
BU-7e	5	EACH	FURNISH LUMINAIRE AND LAMP, HIGH PRESSURE SODIUM, 1000W (MATERIAL ONLY)	$ 10.00	$ 50.00
BU-7f	5	EACH	FURNISH LUMINAIRE AND LAMP, LOW PRESSURE SODIUM, UNDER 60W (MATERIAL ONLY)	$ 20.00	$ 100.00
BU-7g	5	EACH	FURNISH LUMINAIRE AND LAMP, LOW PRESSURE SODIUM, 90W TO 180W (MATERIAL ONLY)	$ 20.00	$ 100.00
BU-7h	1	EACH	FURNISH LUMINAIRE AND LAMP, METAL HALIDE, 175W TO 400W (MATERIAL ONLY)	$ 200.00	$ 200.00
BU-7i	1	EACH	FURNISH LUMINAIRE AND LAMP, METAL HALIDE, 1000W (MATERIAL ONLY)	$ 50.00	$ 50.00
BU-8	1	EACH	REPLACE HIGH MAST LOWERING DEVICE	$ 50.00	$ 50.00
BU-9	5	EACH	REPLACE LIGHT STANDARD FOUNDATION, CONCRETE	$ 50.00	$ 250.00
BU-10	5	EACH	REPLACE LIGHT STANDARD FOUNDATION, METAL	$ 50.00	$ 250.00
BW-1	1	EACH	PAINT HIGH MAST LIGHT POLE INCLUDING BLAST CLEANING	$ 100.00	$ 100.00
BW-2	1	EACH	DESIGN AND IMPLEMENT A DECAL BASED NUMBERING SYSTEM FOR ALL HIGHWAY LIGHTING SYSTEMS	$ 50.00	$ 50.00
BX-1	25	EACH	GROUP REPLACEMENT OF MERCURY VAPOR LAMPS	$ 20.00	$ 500.00
BX-2	180	EACH	GROUP REPLACEMENT OF HIGH PRESSURE SODIUM LAMPS	$ 20.00	$ 3,600.00
BX-3	100	EACH	GROUP REPLACEMENT OF LOW PRESSURE SODIUM LAMPS	$ 25.00	$ 2,500.00
BX-4	10	EACH	GROUP REPLACEMENT OF METAL HALIDE LAMPS	$ 40.00	$ 400.00
BY-1	1000	FOOT	REPLACE FAULTY CABLE FOR STREET AND ROADWAY LIGHTING SYSTEM	$ 0.05	$ 50.00
BZ-1	50	EACH	SPECIAL CLEANING OF LUMINAIRES, STANDARD UNIT OVER 30'	$ 4.00	$ 200.00
BZ-2	1	EACH	SPECIAL CLEANING OF LUMINAIRES, HIGH MAST UNIT OVER 80', WITH LOWERING DEVICE	$ 5.00	$ 5.00
BZ-3	50	EACH	SPECIAL CLEANING OF LUMINAIRES, UNDERPASS UNIT UNDER 30'	$ 5.00	$ 250.00

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
NAVIGATION LIGHTING AND BRIDGE CATHODIC PROTECTION ROUTINE MAINTENANCE ITEMS:				PER MONTH PER INSTALLATION	
C-1	5	EACH	NAVIGATION LIGHTING SYSTEM	$ 10.00	$ 50.00
C-2	5	EACH	BRIDGE CATHODIC PROTECTION SYSTEM	$ 12.00	$ 60.00
NAVIGATION LIGHTING AND CATHODIC PROTECTION SPECIALTY ITEMS:				UNIT COST	
CX-1	25	EACH	REPLACE BROKEN LENSES	$ 1.00	$ 25.00
CY-1	12	EACH	REPLACE NAVIGATION LIGHTING UNIT	$ 3.00	$ 36.00
CZ-1	10	EACH	REBRAZE LEAD WIRE TO STEEL REINFORCEMENT BAR	$ 4.00	$ 40.00
CZ-2	500	SQ FT	REPAIR ANODE MESH	$ 1.00	$ 500.00
PUMPING STATION ROUTINE MAINTENANCE ITEMS:				PER MONTH PER INSTALLATION	
D-1	1	EACH	PUMPING STATION NO. 1, East Lake Avenue @ N. Branch, Chicago River: 4-15,000 GPM pumps, 1-500 GPM sump pump	$ 1,800.00	$ 1,800.00
D-2	1	EACH	PUMPING STATION NO. 2, East Lake Avenue @ C & NW RR E. of Pfingsten: 4-4,200 GPM pumps	$ 1,700.00	$ 1,700.00
D-3	1	EACH	PUMPING STATION NO. 3, Sauk Trail @ ICG RR: 3-2,000 GPM pumps	$ 1,500.00	$ 1,500.00
D-4	1	EACH	PUMPING STATION NO. 4, Lake-Cook Road @ METRA RR W. of Waukegan Road: 3-4,200 GPM pumps	$ 1,600.00	$ 1,600.00
D-5	1	EACH	PUMPING STATION NO. 5, Lake-Cook Road @ UP RR W. of Skokie Road: 3-2,160 GPM pumps	$ 1,500.00	$ 1,500.00
D-6	1	EACH	PUMPING STATION NO. 6, 171st Street @ Ashland Avenue: Submersible Type with 2-3,590 GPM pumps (High Flow) and 2-500 GPM pumps (Low Flow),1/3 HP Sump Pump	$ 75.00	$ 75.00
D-7	1	EACH	PUMPING STATION NO. 7,Green Bay Road @ Lake Avenue:Submersible Type with 2-275 GPM pumps	$ 1,300.00	$ 1,300.00
PUMPING STATION SPECIALTY ITEMS:				UNIT COST	
DX-1	6	EACH	SPECIAL CLEANING OF WET PITS	$ 50.00	$ 300.00
DX-2	500	SQ YD	ASPHALT DRIVEWAY PAVEMENT	$ 1.00	$ 500.00
DX-3	1000	SQ FT	EXTERIOR BRICK COATING	$ 1.00	$ 1,000.00
DX-4	24	HOUR	INFRARED THERMOGRAPHY INSPECTION SERVICE	$ 40.00	$ 960.00
DX-5	5	EACH	HID LIGHT FIXTURE	$ 40.00	$ 200.00
DX-6	6	EACH	SWITCH GEAR SYSTEM INSPECTION	$ 100.00	$ 600.00
DX-7	1	LUMP SUM	FLAP GATE REPLACEMENT	$ 10,000.00	$ 10,000.00
EXTRA WORK SPECIALTY ITEMS:					
EX-1	100000	UNIT	REGULAR WORK SPECIAL	$ 1.00	$ 100,000.00
EX-2	1000	HOUR	LABOR TO UPGRADE ALL ELECTRICAL SYSTEMS EXCEPT THOSE IN THE MAINTENANCE FACILITIES	$ 5.00	$ 5,000.00
MAINTENANCE FACILITIES ROUTINE MAINTENANCE ITEMS:				PER MONTH PER INSTALLATION	
F-1	5	EACH	MAINTENANCE FACILITIES ELECTRICAL SYSTEMS ROUTINE MAINTENANCE	$ 2,000.00	$ 10,000.00
MAINTENANCE FACILITIES SPECIALTY ITEMS:				UNIT COST	
FX-1	1000	HOUR	LABOR TO UPGRADE ELECTRICAL SYSTEMS	$ 5.00	$ 5,000.00

(CONTINUED ON NEXT PAGE)

CONTRACTOR NAME:

Project: Electrical and Mechanical Item Maintenance - 2014 Various Locations

Section No.: 14-8EMIM-42-GM

SCHEDULE OF PRICES

ITEM NO.	QUAN-TITIES	UNIT	PAY ITEM	UNIT COST	TOTAL COST
FX-2	2	EACH	THERMO GRAPHIC INSPECTION	$ 200.00	$ 400.00
GENERAL SPECIALTY ITEMS:				UNIT COST	
GX-1	100	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, - 1 1/4 INCH	$ 1.00	$ 100.00
GX-2	100	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 1 1/2 INCH	$ 1.00	$ 100.00
GX-3	6500	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2 INCH	$ 1.00	$ 6,500.00
GX-4	900	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2 1/2 INCH	$ 1.00	$ 900.00
GX-5	900	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3 INCH	$ 1.00	$ 900.00
GX-6	900	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 3 1/2 INCH	$ 1.00	$ 900.00
GX-7	2500	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 4 INCH	$ 1.00	$ 2,500.00
GX-8	400	FOOT	UNDERGROUND CONDUIT, GALVANIZED STEEL, 5 INCH	$ 1.00	$ 400.00
GX-9	500	FOOT	UNDERGROUND CONDUIT, P.V.C., 1 1/2 INCH	$ 1.00	$ 500.00
GX-10	500	FOOT	UNDERGROUND CONDUIT, P.V.C., 2 INCH	$ 1.00	$ 500.00
GX-11	100	FOOT	UNDERGROUND CONDUIT, P.V.C., 2 1/2 INCH	$ 1.00	$ 100.00
GX-12	100	FOOT	UNDERGROUND CONDUIT, P.V.C., 3 INCH	$ 1.00	$ 100.00
GX-13	100	FOOT	UNDERGROUND CONDUIT, P.V.C., 4 INCH	$ 1.00	$ 100.00
GX-14	100	FOOT	UNDERGROUND CONDUIT, P.V.C., 5 INCH	$ 1.00	$ 100.00
GX-15	1000	FOOT	COILABLE NON-METALLIC CONDUIT	$ 1.00	$ 1,000.00
GX-16	5000	FOOT	REMOVE ELECTRIC CABLE FROM CONDUIT	$ 0.10	$ 500.00
GX-17	2	EACH	SERVICE INSTALLATION, POLE MOUNT	$ 500.00	$ 1,000.00
GX-18	2	EACH	SERVICE INSTALLATION, GROUND MOUNT	$ 500.00	$ 1,000.00
GX-19	2	EACH	COMBINATION LIGHTING AND TRAFFIC SIGNAL SERVICE INSTALLATION, POLE MOUNTED	$ 250.00	$ 500.00
GX-20	5	EACH	RELOCATE SERVICE INSTALLATION	$ 200.00	$ 1,000.00
GX-21	10	EACH	HANDHOLE	$ 25.00	$ 250.00
GX-22	10	EACH	HEAVY DUTY HANDHOLE	$ 50.00	$ 500.00
GX-23	2	EACH	DOUBLE HANDHOLE	$ 100.00	$ 200.00
GX-24	5	EACH	REBUILD EXISTING HANDHOLE	$ 50.00	$ 250.00
GX-25	10	EACH	REMOVE EXISTING CONCRETE FOUNDATION	$ 1.00	$ 10.00
GX-26	10	EACH	REMOVE EXISTING CONCRETE HANDHOLE	$ 1.00	$ 10.00
GX-27	25	EACH	DRILL EXISTING HANDHOLE	$ 5.00	$ 125.00
GX-28	100	SQ FT	MEDIAN REMOVAL AND REPLACEMENT	$ 1.00	$ 100.00
GX-29	100	SQ FT	SIDEWALK REMOVAL AND REPLACEMENT	$ 1.00	$ 100.00

(CONTINUED ON NEXT PAGE)

Project: Electrical and Mechanical Item Maintenance Various Locations

SCHEDULE OF PRICES

SUMMARY SHEET

Section No.: 14-8EMIM-42-GM

ITEM	MONTHLY ROUTINE MAINTENANCE PER ITEM		YEARLY ROUTINE MAINTENANCE PER ITEM	YEARLY SPECIAL ITEM	
A-1 THRU A-9	$ 160,385.00	X12	$ 1,924,620.00	----------	----------
AX-1 THRU AX-4	----------		----------	$ 20,275.00	----------
AY-1 THRU AY-3	----------		----------	2,700.00	----------
AZ-1 THRU AZ-122	----------		----------	258,624.00	----------
SUBTOTAL A	----------		----------	----------	$ 2,206,219.00
B-1 THRU B-3	1,528.81	X12	18,345.72	----------	----------
BU-1 THRU BU-10	----------		----------	4,810.00	----------
BW-1 THRU BW-2	----------		----------	150.00	----------
BX-1 THRU BX-4	----------		----------	7,000.00	----------
BY-1	----------		----------	50.00	----------
BZ-1 THRU BZ-3	----------		----------	455.00	----------
SUBTOTAL B	----------		----------	----------	$ 30,810.72
C-1 THRU C-2	110.00	X12	1,320.00	----------	----------
CX-1	----------		----------	25.00	----------
CY-1	----------		----------	36.00	----------
CZ-1 THRU CZ-2	----------		----------	540.00	----------
SUBTOTAL C	----------		----------	----------	$ 1,921.00
D-1 THRU D-7	9,475.00	X12	113,700.00	----------	----------
DX-1 THRU DX-7	----------		----------	13,560.00	----------
SUBTOTAL D	----------		----------	----------	$ 127,260.00
EX-1	----------		----------	100,000.00	----------
EX-2	----------		----------	5,000.00	----------
SUBTOTAL E	----------		----------	----------	$ 105,000.00
F-1	10,000.00	X12	120,000.00	----------	----------
FX-1 THRU FX-2	----------		----------	5,400.00	----------
SUBTOTAL F	----------		----------	----------	$ 125,400.00
GX-1 THRU GX-29	----------		----------	20,245.00	----------
SUBTOTAL G	----------		----------	----------	$ 20,245.00
				GRAND TOTAL ITEMS A-1 THRU GX-29	$ 2,616,855.72

CONTRACT NO. 1328-12938

QUICK PAYMENT DISCOUNTS

Cook County is working hard to reduce budgets, engage in strategic sourcing, and streamline internal processes. Consequently, Cook County has initiated a Quick Payment program. The Quick Payment program serves the purpose of both benefiting Cook County and the vendor community. The County will be able to able purchase goods and services in a timelier manner while improving vendor relations. Vendors will benefit from reduced collection periods and improved capital charges. This will allow the vendor community to also reduce opportunity costs and improve strategic planning capabilities. In the chart below please provide what quick payment discounts your company is willing to offer. **This will be used for informational purposes.**

Quick Payment Discounts

1. What payment terms would your company propose for this procurement?

   Meade standard payment terms are Net 30

2. Is there a quick payment discount that your company would be willing to offer? If so, please provide details.

EARLY PAYMENT	% DISCOUNT
NET 30	N/A %
NET 20	N/A %
OTHER	N/A %

BID DEPOSIT FORM

AS REQUIRED BY INSTRUCTION TO BIDDER OF/AND INCONJUNCTION WITH THE BID HEREWITH SUBMITTED

(THIS FORM MUST BE SUBMITTED WITH THE BID)

TO: COOK COUNTY DEPARTMENT OF TRANSPORTATION AND HIGHWAYS

BID FOR: Contract 1328-12938

Section 14-8EMIM-42-GM

BID OPENING DATE: September 13, 2013

We deposit (subject to all condition of said proposal) the following described deposit check:

( ) Cashier's Check ( ) Bank Draft (x) Bid Bond ( ) Other

Drawn on: _____ **of** _____
Bank City State

Draft or Check Number: _____ **Date:** _____

Amount: $ 5% of bid price

Submitted by: Meade, Inc.
Bidder

9550 W. 55th St., Suite A
Street Address

McCook IL 60525
City State Zip Code

DO NOT WRITE IN THE SPACES BELOW

The above described Deposit Check is:

( ) Held _____ Date _____
( ) Mailed _____ Date _____
( ) Delivered To _____ Date _____
( ) Bond Substituted _____ Date _____
( ) Bond Mailed To _____ Date _____

County of Cook
Department of Transportation and Highways

Proposal Bid Bond

Project: Electrical and Mechanical Item Maintenance Various Locations
Section 14-8EMIM-42
Date September 13, 2013
Letting

We Meade, Inc. as Principal, and Continental Casualty Company as Surety, are held and firmly bound unto the County of Cook a body politic and corporate of the state of Illinois herein after called the County in the penal sum of 5% of the total bid price, or for the amount specified in Article 102.09 of the "Standard Specifications for Road and Bridge Construction" in effect on the date of invitation for bids. We bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly to pay to the County 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 County acting through its awarding agency 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 County 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 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 County determines the PRINCIPAL has failed to enter into a formal contract in compliance with any requirements set forth in the preceding paragraph, then the County acting through its awarding agency 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 said SURETY have caused this instrument to be signed by their respective officers and their corporate seals to be hereunto affixed this 13th day of September A.D. 20 13.

PRINCIPAL

Meade, Inc.
(Company Name) (Seal)
BY: Vice President
(Signature & Title)

(Company Name) (Seal)
BY:
(Signature & Title)

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

SURETY

Continental Casualty Company
(Name of Surety) (Seal)

BY: Susan K. Landreth
(Signature of Attorney-in-fact) Susan K. Landreth

STATE OF ILLINOIS
COUNTY OF COOK
I, Christine Eitel, a Notary Public in and for Cook County, do hereby certify that
Michael K. Knutson and Susan K. Landreth
(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, sealed, and delivered said instrument as their free and voluntary act for the uses and purposes therein set forth.
Given under my hand and notarial seal this 13th day of September A.D., 20 13. My commission expires 05/26/2016

Notary Public Christine Eitel

"OFFICIAL SEAL"
CHRISTINE EITEL
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES MAY 26, 2016

*Improper execution of this form (i.e. Missing Signatures or Seals or incomplete certification) will result in bid being declared irregular.
** If Bid Bond is used in lieu of proposal guaranty check, it must be on this form and must be submitted with Bid.

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company (herein called "the CNA Companies"), are duly organized and existing insurance companies having their principal offices in the City of Chicago, and State of Illinois, and that they do by virtue of the signatures and seals herein affixed hereby make, constitute and appoint

Susan K. Landreth , Individually

of Chicago, IL their true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on their behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

Surety Bond Number: Bid Bond
Principal: Meade, Inc.
Obligee: Cook County

and to bind them thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of their insurance companies and all the acts of said Attorney, pursuant to the authority hereby given is hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law and Resolutions, printed on the reverse hereof, duly adopted, as indicated, by the Boards of Directors of the insurance companies.

In Witness Whereof, the CNA Companies have caused these presents to be signed by their Vice President and their corporate seals to be hereto affixed on this 16th day of May, 2012.

Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

Paul T. Bruflat Vice President

State of South Dakota, County of Minnehaha, ss:

On this 16th day of May, 2012, before me personally came Paul T. Bruflat to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is a Vice President of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company described in and which executed the above instrument; that he knows the seals of said insurance companies; that the seals affixed to the said instrument are such corporate seals; that they were so affixed pursuant to authority given by the Boards of Directors of said insurance companies and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said insurance companies.

J. MOHR
NOTARY PUBLIC
SOUTH DAKOTA

My Commission Expires June 23, 2015

J. Mohr Notary Public

CERTIFICATE

I, D. Bult, Assistant Secretary of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company do hereby certify that the Power of Attorney herein above set forth is still in force, and further certify that the By-Law and Resolution of the Board of Directors of the insurance companies printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said insurance companies this 13th day of September, 2013.

Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

D. Bult Assistant Secretary

Form F6853-4/2012

Authorizing By-Laws and Resolutions

ADOPTED BY THE BOARD OF DIRECTORS OF CONTINENTAL CASUALTY COMPANY:

This Power of Attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the Board of Directors of the Company at a meeting held on May 12, 1995:

"RESOLVED: That any Senior or Group Vice President may authorize an officer to sign specific documents, agreements and instruments on behalf of the Company provided that the name of such authorized officer and a description of the documents, agreements or instruments that such officer may sign will be provided in writing by the Senior or Group Vice President to the Secretary of the Company prior to such execution becoming effective."

This Power of Attorney is signed by Paul T. Bruflat, Vice President, who has been authorized pursuant to the above resolution to execute power of attorneys on behalf of Continental Casualty Company.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company by unanimous written consent dated the 25th day of April, 2012:

"Whereas, the bylaws of the Company or specific resolution of the Board of Directors has authorized various officers (the "Authorized Officers") to execute various policies, bonds, undertakings and other obligatory instruments of like nature; and

Whereas, from time to time, the signature of the Authorized Officers, in addition to being provided in original, hard copy format, may be provided via facsimile or otherwise in an electronic format (collectively, "Electronic Signatures"); Now therefore be it resolved: that the Electronic Signature of any Authorized Officer shall be valid and binding on the Company."

ADOPTED BY THE BOARD OF DIRECTORS OF NATIONAL FIRE INSURANCE COMPANY OF HARTFORD:

This Power of Attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the Board of Directors of the Company by unanimous written consent dated May 10, 1995:

"RESOLVED: That any Senior or Group Vice President may authorize an officer to sign specific documents, agreements and instruments on behalf of the Company provided that the name of such authorized officer and a description of the documents, agreements or instruments that such officer may sign will be provided in writing by the Senior or Group Vice President to the Secretary of the Company prior to such execution becoming effective."

This Power of Attorney is signed by Paul T. Bruflat, Vice President, who has been authorized pursuant to the above resolution to execute power of attorneys on behalf of National fire Insurance Company of Hartford.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company by unanimous written consent dated the 25th day of April, 2012:

"Whereas, the bylaws of the Company or specific resolution of the Board of Directors has authorized various officers (the "Authorized Officers") to execute various policies, bonds, undertakings and other obligatory instruments of like nature; and

Whereas, from time to time, the signature of the Authorized Officers, in addition to being provided in original, hard copy format, may be provided via facsimile or otherwise in an electronic format (collectively, "Electronic Signatures"); Now therefore be it resolved: that the Electronic Signature of any Authorized Officer shall be valid and binding on the Company."

ADOPTED BY THE BOARD OF DIRECTORS OF AMERICAN CASUALTY COMPANY OF READING, PENNSYLVANIA:

This Power of Attorney is made and executed pursuant to and by authority of the following resolution duly adopted by the Board of Directors of the Company by unanimous written consent dated May 10, 1995:

"RESOLVED: That any Senior or Group Vice President may authorize an officer to sign specific documents, agreements and instruments on behalf of the Company provided that the name of such authorized officer and a description of the documents, agreements or instruments that such officer may sign will be provided in writing by the Senior or Group Vice President to the Secretary of the Company prior to such execution becoming effective."

This Power of Attorney is signed by Paul T. Bruflat, Vice President, who has been authorized pursuant to the above resolution to execute power of attorneys on behalf of American Casualty Company of Reading, Pennsylvania.

This Power of Attorney is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of the Company by unanimous written consent dated the 25th day of April, 2012:

"Whereas, the bylaws of the Company or specific resolution of the Board of Directors has authorized various officers (the "Authorized Officers") to execute various policies, bonds, undertakings and other obligatory instruments of like nature; and

Whereas, from time to time, the signature of the Authorized Officers, in addition to being provided in original, hard copy format, may be provided via facsimile or otherwise in an electronic format (collectively, "Electronic Signatures"); Now therefore be it resolved: that the Electronic Signature of any Authorized Officer shall be valid and binding on the Company."

SURETY'S STATEMENT
of
QUALIFICATION FOR BONDING
(Section 10)

This document must be accurately executed (by the Surety Company) and yielded as part of this Bid.

IF THIS DOCUMENT IS NOT ACCURATELY EXECUTED AND SUBMITTED WITH THE BID PACKAGE, THIS CONSTITUTES CAUSE FOR DISQUALIFICATION OF THE VENDOR FROM BIDDING ON THIS CONTRACT.

The undersigned confirms that: Continental Casualty Company
(SURETY COMPANY)

would execute a Performance/Payment Bond in favor of the County of Cook for the full amount

of the bid/contract: 1328-12938
(NUMBER)

to: Meade, Inc.
(BIDDER)

The penalty of this bond is to be $ 100% of the Contract Amount
(TOTAL DOLLAR AMOUNT OF CONTRACT)

SURETY

Susan K. Landreth
(SURETY COMPANY'S AUTHORIZED SIGNATURE)

CORPORATE

Susan K. Landreth
(ATTORNEY-IN-FACT)

AMB # 02128 NAIC 20443

SEAL

EXECUTED IN TRIPLICATE

Bond No. 929578713

PERFORMANCE AND PAYMENT BOND TO THE COUNTY OF COOK

Know All Men by These Presents, That we, Meade, Inc.

as principle, and Continental Casualty Company

_____, as surety, are

held and firmly bound unto the County of Cook in the penal sum of Two Million Six Hundred Sixteen Thousand Eight Hundred Fifty Five and 72/100 ---- Dollars ($ 2,616,855.72), lawful money of the United States of America, for the payment of which sum of money well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, firmly, by these presents.

Signed, sealed, and delivered this 10th day of October A.D. 20 13.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, That whereas, the above bounded principle entered into a certain contract with the County of Cook, bearing date the day of **AWARD OF CONTRACT** for **Electrical and Mechanical Item Maintenance, Route Various , Section 14-8EMIM-42-GM in Various Townships; Cook County Contract No.** 1328-12938.

The terms and conditions of the Illinois Public Construction Bond Act, 30 ILCS 550 *et seq.* are hereby incorporated by reference.

It is hereby expressly understood and agreed, and made a condition hereof, that any judgment rendered in favor of any person not a party to said contract against the County of Cook in any suit arising out of said contract or its performance, when reasonable notice of the pendency of such suit shall have been given to said principle and to said surety, shall be conclusive against said principle and said surety as to both liability and amount.

In Witness Whereof, said parties hereto have caused this bond to be executed and delivered at Chicago, Illinois, all on the day and year first above written.

Meade, Inc.

PRINCIPAL/CONTRACTOR SEAL

By _____ Vice PRESIDENT

_____ GROUP SECRETARY

Continental Casualty Company

SURETY SEAL

By _____ SURETY/ATTORNEY-IN-FACT Susan K. Landreth (ATTACH POWER OF ATTORNEY)

02128 AMB# 20443 NAIC#

Approved as to form:

By: _____ ASSISTANT STATES ATTORNEY

PW5.18

State of **ILLINOIS** } ss:

County of **Cook**

On October 10, 2013, before me, a Notary Public to and for said County and State, residing therein, duly commissioned and sworn, personally appeared **Susan K. Landreth**

known to me to be Attorney-in-Fact of **Continental Casualty Company**
the corporation described in and that executed the within and foregoing instrument, and known to me to be the person who executed the said instrument in behalf of the said corporation, and be duly acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year stated in this certificate above.

My Commission Expires 05/26/2016

Notary Public

"OFFICIAL SEAL"
CHRISTINE EITEL
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES MAY 26, 2016

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company (herein called "the CNA Companies"), are duly organized and existing insurance companies having their principal offices in the City of Chicago, and State of Illinois, and that they do by virtue of the signatures and seals herein affixed hereby make, constitute and appoint

Susan K. Landreth , Individually

of Chicago, IL their true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on their behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

Surety Bond Number: 929578713
Principal: Meade, Inc.
Obligee: County of Cook

and to bind them thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of their insurance companies and all the acts of said Attorney, pursuant to the authority hereby given is hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law and Resolutions, printed on the reverse hereof, duly adopted, as indicated, by the Boards of Directors of the insurance companies.

In Witness Whereof, the CNA Companies have caused these presents to be signed by their Vice President and their corporate seals to be hereto affixed on this 16th day of May, 2012.

Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

Paul T. Bruflat Vice President

State of South Dakota, County of Minnehaha, ss:

On this 16th day of May, 2012, before me personally came Paul T. Bruflat to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is a Vice President of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company described in and which executed the above instrument; that he knows the seals of said insurance companies; that the seals affixed to the said instrument are such corporate seals; that they were so affixed pursuant to authority given by the Boards of Directors of said insurance companies and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said insurance companies.

J. MOHR
NOTARY PUBLIC
SOUTH DAKOTA

My Commission Expires June 23, 2015

J. Mohr Notary Public

CERTIFICATE

I, D. Bult, Assistant Secretary of Continental Casualty Company, an Illinois insurance company, National Fire Insurance Company of Hartford, an Illinois insurance company, and American Casualty Company of Reading, Pennsylvania, a Pennsylvania insurance company do hereby certify that the Power of Attorney herein above set forth is still in force, and further certify that the By-Law and Resolution of the Board of Directors of the insurance companies printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said insurance companies this 10th day of October, 2013.

Continental Casualty Company
National Fire Insurance Company of Hartford
American Casualty Company of Reading, Pennsylvania

D. Bult Assistant Secretary

Form F6853-4/2012

COUNTY OF COOK

DEPARTMENT OF TRANSPORTATION AND HIGHWAYS

COOK COUNTY, ILLINOIS

ELECTRICAL AND MECHANICAL ITEM MAINTENANCE

GENERAL PROVISIONS, SPECIAL PROVISIONS and SPECIFICATIONS

List of Locations

Schedule of Prices

For the Maintenance of Traffic Signal Installations, Street and Roadway Lighting Systems, Navigation Lighting Systems, Bridge Cathodic Protection Systems, Storm Water Pumping Station Systems, and Maintenance Facilities Electrical Systems as shown on the list attached, all of which are under the jurisdiction of the Cook County Department of Transportation and Highways, State of Illinois.

I DESCRIPTION OF WORK

This contract is for the maintenance of (1) Traffic Signal Systems, (2) Street and Roadway Lighting Systems, (3) Navigation Lighting Systems, Bridge Cathodic Protection Systems, (4) Storm Water Pumping Station Systems, and (5) Maintenance Facilities Electrical Systems and their appurtenances, located in Cook County.

The Contractor, for specified unit prices listed under Schedule Of Prices, shall: (1) furnish all labor and provide materials to maintain the respective installations and systems, in first class working order and operating condition at all times, (2) make permanent repairs to damaged equipment, (3) clean, repair, perform preventative maintenance, and overhaul specified equipment at stated intervals of time, (4) provide the necessary transportation for workmen, materials, and equipment used to execute the terms of the Contract, (5) **PROVIDE CONTINUOUS MAINTENANCE AND REPAIR SERVICE, INCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS** to correct any malfunction of equipment or effect any temporary emergency repairs to missing, defective, displaced or damaged equipment resulting from any cause in the shortest possible time, and (6) patrol and inspect the respective systems for lamp and other failures and non-operative equipment, shall replace electric lamps in all systems as required, and (7) execute Specialty Items for unit prices as directed by the Engineer, and perform all activities required herein.

The Contractor shall maintain the various systems as described herein. No extra compensation will be allowed over and above the bid prices for meeting these requirements.

The Contractor shall service and maintain existing installations and any new installations of the same or similar type which may be installed or taken over for maintenance by the Department.

CCDOTH will hold quarterly Project Status meetings with the Contractor. The Project Manager and General Foremen shall attend these quarterly meetings which track the progress of routine and non-routine work by the Contractor.

II GENERAL REQUIREMENTS

1. GENERAL PROVISIONS AND SPECIFICATIONS

SPECIFICATIONS AND STANDARDS

The latest issue, at the bid date, of the following standards, including subsequent additions or revisions made prior to the bid date, shall apply to all work, materials and equipment furnished and installed under 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. In case of conflict between referenced standards, the most stringent as determined by the Engineer, shall take precedence and shall govern.

ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS:

- Standard Specifications for Road and Bridge Construction, current version Note: Article 801.02, Standards of Installation shall apply to all systems under this Contract and is not limited to Highway Signs, Luminaires, and Traffic Signals.
- Design Manual Section 3-600 published on Highway Lighting.
- Flaggers' Handbook.
- Highway Standards.
- Manual on Uniform Traffic Control Devices.
- Recurring Special Provisions for Traffic Signals, Road and Bridge and Other Related Laws Safety Code.
- Special Provision for Special Non-RCRA Waste and RCRA Hazardous Waste Working Conditions.
- Supplemental Construction Specifications and Recurring Specifications.
- Traffic Control Plans for Daytime and Nighttime Traffic Operations.
- Work Site Protection Manual.

IDOT DISTRICT 1 STANDARDS AND SPECIFICATIONS:

- Confined Entry Space Policy.
- District 1 Standards.
- Recurring Traffic Signal Specifications.
- Recurring Special Provisions for Roadway Lighting.
- Standard Specifications Integrated Closed-Loop Traffic Signal Monitoring.
- Standard Traffic Signal Design Details.
- Traffic Signal Plan Preparation and Design Guide.

NATIONAL STANDARDS AND SPECIFICATIONS:

- An Informational Guide for Roadway Lighting, published by American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Washington, DC 20001.
- Insulated Cable Engineers Assn. and Underwriters Laboratories publications when applicable for cable and other materials.
- National Electrical Manufacturers Association Standards, American National Standards Institute, where applicable, for signals, lamps, ballasts, and other accessories.
- American National Standards Institute, where applicable, for ballasts, and other accessories.
- ASTM Standards for materials.
- All applicable manuals and policies of FHWA.
- American National Standard Practice for Roadway Lighting, published by Illuminating Engineering Society of North America, 120 Wall St., 17th Floor, New York, NY 10005, 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-70-2002, 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

2. DEFINITIONS OF TERMS

A. **AEGIS** – Alarm reporting and dialing system at a pumping station.

B. **ANSI** - American National Standards Institute.

C. **BRIDGE CATHODIC PROTECTION SYSTEM** - All types of bridge cathodic protection systems including all appurtenances owned or maintained by the County of Cook and under the jurisdiction of the Department.

D. **CCDOTH INSPECTOR** - Employees of the Cook County Department of Transportation and Highways assigned duties by the Engineer.

E. **CONTRACT PERIOD** - When used herein shall be the period January 1, to December 31, of any calendar year.

F. **DAMAGED EQUIPMENT** - 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 Engineer so that failure is imminent, or for which safety could be a concern.

G. **DEPARTMENT SAFETY CODE** -When used herein shall mean the Illinois Division of Highways "Safety Code", latest edition.

H. **DBE** - Disadvantaged Business Enterprise.

I. **EMERGENCY** - A condition which is a hazard to the public, or is designated by the Engineer to be a hazard of such severity that life and property are endangered and which requires Immediate Corrective Action.

J. **ENGINEER** - CCDOTH Engineer on this Contract.

K. **EQUIPMENT SERVICE** - Refers to the servicing and/or restoration of any equipment to normal operating condition and appearance necessitated by service equipment wear-out, failure, damage or loss.

L. **FROM ANY CAUSE WHATSOEVER** – When used herein shall include any and all causes except those resulting in extensive damage from declared area-wide disasters (such as fires and floods), acts of the public enemy, or an Act of God. The "area-wide disaster" exclusion will be valid only for the time period and area as defined by a Governor's Disaster Declaration.

M. **IMMEDIATE CORRECTIVE ACTION** - Refers to all activity necessary to restore the safe operating integrity of a system or system element, without delay.

N. **IMSA** - International Municipal Signal Association.

O. **KNOCKDOWN (KD)** - Refers to damage which results in the knockdown of a Light Pole, Luminaire, a Traffic Signal, or a Traffic Signal or Lighting Control Cabinet.

P. **LIGHTING INSTALLATION** - One or more lighting units powered from one common electric service.

Q. **LOCATION** - When used in terms of routine payment refers to all equipment to be maintained at a designated installation, usually powered by the same source.

R. **MAINTENANCE SCHEDULE** - A schedule prepared by the Engineer, or prepared by the Contractor and approved by the Engineer, showing starting and completion dates of maintenance items to be performed on the various installations or systems, or items to be replaced or work to be done for a unit price as listed in the Schedule of Prices.

S. **MAINTENANCE FACILITIES ELECTRICAL SYSTEMS** -All types of lighting, power, and alarm circuits, including emergency generators, transfer switches, control panels, electric service and all appurtenances in all buildings and grounds designated as a Maintenance Facility owned by the County of Cook and under the jurisdiction of this Department.

T. **MANUAL ON TRAFFIC CONTROL DEVICES (M.U.T.C.D.)** - The State of Illinois "Manual on Uniform Traffic Control Devices for Streets and Highways".

U. **NAVIGATION LIGHTING SYSTEM** - All types of navigation lighting units attached to a roadway structure over navigable waterway, including all appurtenances, owned or maintained by the County of Cook and under the jurisdiction of this Department.

V. **NEC** - National Electrical Code.

W. **NEMA** - National Electrical Manufacturers Association.

X. **OSHA** - Occupational Safety Health Administration.

Y. **PATROLMAN** - Defines an electrician, who is assigned regular electrical system patrol and street maintenance response duties by the Contractor. Patrolmen have the responsibility for inspecting and servicing a pre-assigned select group of installations in accordance with a defined regular recurring time schedule. The assigned installations may be from any one (1) or all, of the Electrical Systems included under the overall scope of the Contract.

Z. **PERMANENT REPAIR TIME** - Amount of time from initial notification to the Contractor until the time permanent repairs are made, if the Contractor was required to make temporary repairs to meet the service restoration requirement.

AA. **POTS** - Plain old telephone service.

BB. **PLNC** - Private line telephone service which provides a direct connection between two points through an automatic ring signal at one end when initiated at the other.

CC. **PUMPING STATION** - All types of storm water pumping stations for roadway storm water including pumps, electrically controlled devices, pump house and all appurtenances, owned or maintained by the County of Cook and under the jurisdiction of the Department.

DD. **QA/QC** - Quality Assurance/Quality Control.

EE. **REGULAR WORK** - Any work upon an existing system or existing installation that is not specified in this contract as Routine Maintenance and is specifically authorized in writing by the Engineer to be performed by the Contractor, except work necessitated by negligence of the Contractor, his employees, or agents. Provisions for Non-Routine are covered in Article III, Item 10.

FF.

GG. **RESPONSE TIME** - Amount of time from the initial notification to the Contractor until a repair person physically arrives at the location.

HH. **ROUTINE MAINTENANCE** - Refers to all work required to staff, equip, patrol, inspect and maintain electrical systems, whole and operational, at locations as defined herein, except for work specifically excluded from routine maintenance coverage and paid separately as non-routine maintenance work.

II. **SERVICE RESTORATION TIME** - Amount of time from the initial notification to the Contractor until the time the system is fully operational again (In cases of motorist caused damage the undamaged portions of the system are operational.)

JJ. **SPECIAL OR SPECIALTY ITEM** - When referred to in this Contract shall refer to work that may be performed by entities other than the electrical maintenance Contractor who are not pre-qualified subcontractors but whose services are necessary because of specialized equipment, specialized expertise or the maintenance restrictions on a particular piece of electrical system equipment. Examples of specialty service entities include traffic signal control equipment and cabinet repair, motor repair shops, pump rebuild shops, communication and/or electronics repair shops, manufactures' authorized repair agents and similar service providers. Such work is not restricted to in-shop work and such services may be field-performed. Such services will not be considered as materials. Refer to subcontracting requirements for additional information.

KK. **STANDARD SPECIFICATIONS** - Illinois Division of Highways "Standard Specifications for Road and Bridge Construction", latest edition.

LL. **STREET AND ROADWAY LIGHTING SYSTEM** - One or more lighting units powered from one common electric service, including all appurtenances, owned or maintained by the County of Cook and under the jurisdiction of the Department.

MM. **SYSTEM** - When used herein refers to any or all Electrical Systems covered by this Contract: Highway and Yard Lighting, Maintenance Yard Electrical, Navigation Lights, Cathodic Protection, Pumping Stations and Traffic Signals.

NN. **THIRD PARTY** - Any entity other than CCDOTH or the Contractor.

OO. **TRAFFIC SIGNAL** - All electrically operated control devices and appurtenances necessary to effect the established method of traffic control at any given location.

PP. **TRAFFIC SIGNAL INSTALLATIONS** - All traffic signals including flashing signals and any such other similar equipment, including all appurtenances owned by the County of Cook or under the jurisdiction of this Department.

QQ. **UPS** - Uninterruptible Power Source.

RR. **WEEK** - When used herein shall mean a period of seven (7) calendar days. Any multiple of this term shall mean a corresponding multiple of the number of calendar days.

SS. **Working Day** - When used in connection with this contract shall mean any day the Offices of the Cook County Department of Transportation and Highways are open for normal business.

TT. **YARD** - Any CCDOTH Maintenance Facility.

UU. **24/7** – Refers to operations required twenty-four hours per day, seven days a week.

3. CONTROL OF WORK

The Engineer will be responsible for the control of the work in conformance with Section 105 of the Standard Specifications and Contract Special Provisions.

A. The Contractor shall designate in writing at least four responsible representatives of his organization to whom instructions may be given by the Engineer. The Contractor shall furnish the names, addresses, and telephone numbers of his representatives to the Engineer. These representatives shall be available at all times. All field supervisors shall have the sole responsibility of overseeing the field operations of their men. Whenever the supervisor is not available due to business or leave, the County is to be informed who is in charge and for how long the supervisor will be unavailable.

B. The Engineer may make frequent investigations and periodic inspections of the respective systems and installations to determine if all maintenance operations are being performed by the Contractor promptly and satisfactorily, and in the manner specified in this Contract.

In the final month of routine maintenance, the Engineer may apply a withholding of up to 75% of the final month's routine maintenance billing until all authorized routine and non-routine maintenance work is complete, but may progressively release portions of the retainage as the incomplete work is reduced. Key items for completion of work under a calendar year (or term) include:

- All routine work completed approved with all documentations.
- All workforce analysis reports submitted and accepted.

C. The Engineer may prepare MAINTENANCE SCHEDULES for the prosecution of work on the various items of Routine Maintenance or on special items which are to be completed at regularly stated intervals.

Except as notified in writing by the Engineer, the Contractor is automatically authorized and required to perform routine maintenance work, which includes response, scheduled work and preventative maintenance actions on all County maintained electrical systems in a manner prescribed in this Contract. All labor, personnel vehicles, and construction equipment necessary for the routine maintenance work described herein is included in the routine maintenance bid items.

Unless certain work is specifically described herein to be non-routine work, all work required by the Contract shall be incidental to the requirements of routine maintenance. Specific items of routine maintenance work are described under the description of work for each respective system. General requirements in support of routine maintenance are included in, but not limited to, this article.

The Contractor shall continuously watch for System elements that are malfunctioning or in need of replacement. Malfunctioning equipment shall be repaired or replaced as part of routine maintenance. The Contractor shall, however, submit an Inspection Report, per Article III 9, for items which are a safety risk or prone to imminent failure, and receive non-routine payment for the material portion of the repair.

The Contractor shall document to the Engineer that the various items of equipment at all locations perform properly, that maintenance operations for the respective installations and systems prescribed by this contract are not to be interrupted, that maintenance completion dates as specified or agreed are met, and that repair work as performed on system equipment meets all applicable codes and Cook County requirements.

The Contractor is responsible to perform maintenance under this Contract which prevents operational problems, minimizes trouble calls, safeguards electrical safety, promotes operational safety and which prolongs the operations life of installed systems. Some of these maintenance activities will be initiated by the Engineer, some will be jointly developed between the Contractor and the Engineer, and some are expected to be routine maintenance obligations of the Contractor.

4. GENERAL POLICIES

A. RESPONSE TIME:

A.1 The purpose of this Contract is to assure that all components of the systems and installations operate essentially as originally installed or as subsequently modified and for preventive maintenance, to guard against and prevent equipment failures due to mechanical or electrical defects. The proper functioning of the systems and installations is essential to maintain the smooth, expeditious, and safe movements of traffic. Consequently, it is imperative that all equipment in the systems and installations be serviceable and in good operating condition at all times so as to insure maximum working efficiency and prevent unnecessary failures. When equipment failures do occur, due to unforeseen events, knockdowns, 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 the equipment, **service calls and emergency calls shall be answered promptly, and extraordinary effort shall be exerted by the contractor to render this service. Response time for all calls is to be one (1) hour, and temporary service restoration is to be four (4) hours, and permanent equipment repairs in seven (7) days, with the exception of cabinet and pole knockdowns which have to be temporarily restored in twenty four (24) hours, and permanently repaired in twenty-one (21) days.**

Traffic controller, post and pole foundations which have to be permanently repaired in twenty-one (21) days. Mast arm assembly and pole must be set within 7 days after foundation repairs are completed or after a replacement pole and/or arm assembly become available. Temporary head placement shall meet the requirements of the current MUTCD for driver visibility. Traffic system maintenance calls shall be responded to within one (1) hour and restoration for all system equipment, (all hardware, software, and information as carried in the database software or communications, including communications hardware between the headquarters computer and all remote terminals) shall be within twelve

(12) hours, except as otherwise permitted by the Engineer. Replacement parts and/or equipment shall be on hand and installed within 24 hours of the service request, except as permitted by the Engineer, and permanently repaired in fourteen (14) days.

Response time damages are a one time charge of two hundred ($200) per incident. Service restoration penalties are a one time charge of two hundred ($200) per incident. These moneys, if applied as liquidated damages by the Engineer, will be deducted from the monthly billing.

B. EMERGENCY RESPONSE AND CALL-OUT POLICY

B.1 EMERGENCY RESPONSE

For the Contractor's forces employed on this Contract, the work on this Contract shall take precedence over work performed for others, including other government agencies except as expressly permitted by the Engineer or specified herein. This requirement applies to work activities on a daily basis. The Engineer reserves the authority to re-direct the Contractor's work priorities in response to emergency situations, potential hazards, contract coordination and incomplete or deficient work and the Contractor will be allowed no additional compensation for priorities so redirected.

The following top priorities of work, as listed below, shall take precedence over work of others and other work on this contract, unless permitted, on a case-by-case basis, by the Engineer. The response times to these situations shall be as defined elsewhere herein. It is not necessary for the Contractor to obtain approval to utilize dedicated personnel, as specified herein, to respond to these top priorities.

1. Railroad/Vehicle Conflict.
2. Railroad Interconnect Problem/Outage
3. Traffic Control Conflict.
4. Traffic Obstruction.
5. Electrical Hazard.
6. Power Outage.
7. Water on Pavement.
8. Hazardous Materials on Highway.
9. Other incidents as specifically alerted by the Engineer

When equipment failures do occur due to unforeseen events, motorist caused damage, or from any cause whatsoever, time is of the essence for Contractor personnel to arrive at the scene, shut-down or safely isolate any potentially hazardous electrical condition, clear the pavement of any equipment debris resulting from the damage and take corrective measures to assure the

safety of the motoring public, and coordinate the efforts to restore normal traffic operations.

The Contractor's response shall include not only reporting to the location of an incident or trouble but also timely immediate action as prescribed for the various Systems herein, or as required by the situation to mitigate immediate hazards and effect necessary temporary and/or permanent repairs and restoration of electrical systems.

Normal response time shall be one (1) hour, with temporary service restoration in four (4) hours, and permanent equipment repairs in seven (7) days. Refer to Systems articles herein for specific response time requirements. A Ticket is required to document every call-out/dispatch response (temporary and/or permanent repair).

All damaged equipment, determined by the Contractor not to be re-usable, shall be removed from the County highway right-of-way within twenty-four (24) hours from the time of the notification of the incident, exclusive of Saturdays, Sundays, and Holidays, and taken to the Contractor's shop area and shall be disposed of by the Contractor.

All shoulder, or lane closures required for clearing, and installing temporary or permanent repairs shall be in conformance with existing Departmental standards governing lane closures.

B.2 CALL-OUT POLICY

The Contractor is required to have a Call-Out policy that formalizes the 24/7 response necessary to provide continuous maintenance for Systems covered under this Contract. The Contractor shall, in addition to the Dispatch Center Supervisor, appoint a Manager or specialist to be on-call (on a rotating basis) after the normal workday hours and on weekends to serve as an Emergency Response Coordinator to prioritize the emergency response for all electrical systems. In this capacity the Emergency Response Coordinator shall arrive on scene to coordinate work with the Dispatch Center Supervisor.

The Emergency Response Coordinator shall have the authority to call out additional personnel for dispatching or patrol duties. During storms or other emergency situations, the Dispatch Center Supervisor and all dispatchers shall be responsible to the Emergency Response Coordinator (or the Project Manager, if in attendance at the Dispatch Center).

Under storm conditions, emergency situations or other special circumstances requiring the setting of priorities from among system needs requiring immediate corrective action, which go beyond the Contractor's immediate ability to respond, the assigned on-call Emergency Coordinator shall set response priorities in such a manner as to minimize hazard and inconvenience to the public and otherwise optimize the effectiveness of the Contractor's forces, but only, after first initiating the callout of additional forces in sufficient number to address the situation. The Contractor shall communicate and coordinate with the Engineer in such situations.

The Engineer reserves the authority to re-direct the Contractor's work priorities in response to emergency situations, potential hazards, contract coordination and incomplete or deficient work and the Contractor will be allowed no additional compensation for priorities so redirected.

Each Thursday the Contractor shall fax to the Engineer the weekend and following week's On-Call Work Schedule for the Emergency Response Coordinator, Dispatch Center personnel and On-Call Patrolmen.

Following repair work, the associated area restoration shall be equal to or better than the original area condition. For example, in a construction area the Contractor shall regrade the surface work area with black dirt, placing seed or sod.

The Contractor may be required to perform maintenance or repair on equipment not maintained by him at Contract unit prices as requested by the Engineer.

C. PERSONNEL QUALIFICATION:

C.1 The Contractor shall at all times provide a force of qualified personnel sufficient in the opinion of the Engineer to perform the routine work, non-routine work and specialized operations required and described herein. The force of qualified workmen shall be sufficient to simultaneously perform routine maintenance activity, non-routine work and emergency operations at all times of the day and night. **A minimum of five (5) *dedicated* patrol persons plus one (1) General Foreman shall be assigned to work exclusively on this Contract.** The General Foreman and patrol persons will be under a supervisor who is in the Contractor's main office, but is not dedicated exclusively to this Contract. Three of these patrol persons shall have a minimum of four years experience with closed loop systems. This is in addition to loop, pump house, knockdown repair and construction crews (minimum size of 2 men per crew) who shall finish all County work and regular work before being able to do work for other entities.

All patrol persons shall meet the following qualifications:

- An IMSA level II certificate.
- Experienced journeyman electrician with a valid electrician's card.
- Minimum 4 years experience with traffic signals.
- Valid drivers' license and the ability to respond in the field.
- Available 24/7 for emergency call-out.
- Familiarity with fiber optic cable installation.

The individuals appointed to these positions shall be approved by the Engineer prior to the start of the Contract. Any position change shall be approved by the Engineer.

The personnel responding 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 and under normal traffic conditions.

Electronic Patrol and all Closed Loop System reports are not to be done by a patrolman. This work is to be done by general foreman in the Contractor's shop or main office.

General foreman shall also meet the following qualifications:

- An IMSA level II certificate.
- Experienced journeyman electrician with a valid electrician's card.
- Minimum 8 years experience with traffic signals and traffic signal systems.
- Hands-on abilities to solve trouble calls for any traffic signal cabinet or communications failure.
- Knowledge of the operation of software for the Econolite and Eagle traffic signal close loop systems, controllers, equipment operation manuals.
- Valid drivers' license and the ability to respond in the field.

When dedicated patrol persons and foremen are off for any reasons, the Contractor must make substitutions so that the total amount of dedicated personnel remains constant.

The Contractor shall provide individual photo card identification for all personnel working on this Contract.

The Contractor may use dedicated personnel for **emergency** situations of others provided that he first gets approval from the Engineer. The emergency use for others shall not be sufficient grounds to not do routine and non-routine duties in the prescribed time frames.

The Contractor may use knockdown, pump station and repair crews for other work, but Department work must come first. The Contractor is to keep weekly payroll reports for this Contract at his office for review by the Engineer. The Contractor is to report monthly with a listing of all workers and subcontractors being used for this Contract.

The Contractor is to supply an organizational chart with resumes of all workers to be used on this Contract at the Pre-Construction meeting. The Engineer has the right to reject any worker if he feels that the worker is not qualified.

D. PERSONNEL TRAINING PROGRAMS:

D.1 GENERAL

The Contractor shall establish a work training program for equipment requiring detailed training or troubleshooting and/or situations requiring special attention. Proper training of contract personnel shall assure acceptable maintenance by the Contractor while attaining the highest level of safety for contract personnel and the motoring public. Although these personnel training programs shall be included under routine maintenance, depending upon the dedicated personnel workday, the Contractor may be required to conduct these training sessions on employee overtime in order to have all training sessions completed by June 1, 2014, or unless otherwise approved by the Engineer.

The Training programs shall be taught by qualified instructors, and where certification of the trainer is applicable, the trainer shall be certified. The Training Programs shall be submitted for approval by the Engineer at the Pre-Construction Meeting. All instructors and instruction materials shall be approved by the Engineer prior to all training sessions.

Unless otherwise indicated or arranged, the Contractor shall provide for the attendance of four (4) County staff at each formal training session, coordinating attendance with the Engineer.

D.2 OSHA AND OTHER SAFETY TRAINING

All Contractor personnel shall receive training in applicable OSHA requirements and other safety related topics to include, but not be limited to, Lock-Out/Tag-Out, Confined Space, Safety, Respirator Training (as applicable), Use of Safety Harnesses for work on structures and basic First Aid.

D.3 NATIONAL ELECTRICAL CODE/GROUNDING/LIGHTNING PROTECTION

The Contractor shall establish a training- program not less than one (1) day in duration to address proper and safe grounding and/or National Electrical Code and/or lightning protection of electrical systems. The program shall be taught by a professional trainer regularly engaged on this topic, and the training shall specifically address applications to typical CCDOTH systems such as electrical installation and maintenance, traffic signals, highway lighting, pump stations, and maintenance facilities. Treatment of this material and selection of the trainer shall be coordinated with the Engineer in advance. This training shall be provided for all appropriate technical personnel, including all personnel engaged in electrical wiring work. The Contractor shall also provide for the attendance of six (6) CCDOTH staff. It is anticipated that this somewhat customized, program would be taught on site within Cook County.

D.4 OTHER TRAINING

The Contractor shall provide in-house training sessions for those individuals who would be maintaining specific equipment requiring detailed maintenance or troubleshooting and/or situations requiring special attention, or for specific procedures which are unique to this Contract.

The Contractor shall submit to the Engineer for approval a copy of the training criteria and list of personnel to be trained. The Engineer shall witness all specific equipment and dispatch center training sessions. This in-house training may be required more than once per year if situations and/or personnel changes occur. Required in-house training includes:

D.4.1 TRAFFIC SIGNAL SYSTEM:

The Contractor shall provide user training on traffic signal controller operations, from the controller manufacturers for all Patrolmen and CCDOTH personnel as specified above for each of the types of controllers in use by the Traffic Signal System in Cook County, or as approved by the Engineer, including but not limited to

- NEMA TS-1 Cabinets.
- NEMA TS-2 Cabinets.
- Econolite System Controllers.
- Eagle System Controllers.
- Intersection Controllers – Transyt, TCT, Multisonic, Traconex, Eagle, Econolite, Honeywell, and Singer.
- Video Detection - Iteris, Autoscope.
- Conflict Monitors – EDI.
- MMU – EDI, RENO, Econolite
- BIU - Eagle, Econolite.
- Fiber Optic Troubleshooting.
- System and Intersection Controller Software Uploading and Downloading (Closed Loop System Operations).
- Detector Amplifiers.
- Grounding Troubleshooting.
- Railroad Interconnect.
- UPS Systems
- Radio interconnect trouble shooting
- Traffic Signal system timings
- Traffic Signal trouble shooting
- Wireless Magnetic and Radar Vehicle Detection

D.4.2 LIGHTING SYSTEM:

Contractor personnel responding to the Lighting System shall have basic training on the following items:

- Cabinet Controls.
- Clock Programming.
- Control Wiring.
- Lock Out - Tag Out.

D.4.3 PUMP STATION SYSTEM:

Contractor personnel, conducting any routine and/or non-routine work on the Pump Station System shall have introductory training on the following items:

- Ladder Logic.
- Mechanical Training.
- Emergency Response Training for Water-on-Pavement.
- Emergency Response Training for Hazardous Material Situation.
- Lock Out - Tag Out.

D.4.4 MAINTENANCE FACILITY SYSTEMS:

Contractor personnel, conducting any routine and/or non-routine work on the maintenance facility systems shall have introductory training on the following items:

- Alarm Systems.
- Emergency Generators and Transfer Switches.
- Calcium Chloride Control Systems.
- Proper check-in procedures.

D.4.5 DISPATCH CENTER

The Dispatch Center personnel shall be trained on Contract requirements including alarm response and documentation, and field response documentation. A field tour to view electrical equipment shall be required.

- Ticket Entry.
- Maintenance Transfers
- Traffic Signal Patrol Logging.
- Water on Pavement Reporting.
- PS AEGIS Alarms.

- Maintenance Facility Alarms.
- Cable Locate Entry.

The Contractor shall submit to the Engineer for approval a copy of the training criteria and list of personnel to be trained. The Engineer shall witness all specific equipment and Dispatch Center training sessions.

E. SAFETY PROGRAMS AND REQUIREMENTS:

E.1 GENERAL REQUIREMENT

The Contractor shall establish a formal safety program to assure overall safety of all personnel, operations and the electrical systems maintained as they affect the safety of the motoring public and the public at large. The Contractor shall furnish an overall description of this program at the Pre-Construction Meeting, and furnish the name of the Safety Coordinator or Manager.

As part of the Safety Program, the Contractor shall initiate a procedure that states: 'When a circuit is de-energized, the Contractor shall meter the downstream circuits with an instrument to assure that they are de-energized and safe for working conditions.' The Contractor shall be fully responsible for compliance with all OSHA requirements. Particular attention is directed to the lock-out/tag-out requirements to assure that systems undergoing maintenance work cannot be inadvertently energized, causing harm to maintenance person.

The Contractor shall assure that all personnel be trained in, and have knowledge of approved equipment grounding methods for all work under this contract. The Contractor shall be fully responsible for compliance with all NEC requirements. The Contractor shall be responsible for the maintenance of all existing system and equipment grounding under routine maintenance.

Should locations be identified for which system or equipment grounding is missing or otherwise not in compliance with NEC requirements, the Contractor is obligated to report such locations to the Engineer.

The Contractor shall keep all systems free of hazards to the work force and the public, all in conformance with Article 107 of the Standard Specifications. Special care shall be taken to assure that electrical systems are not left in an exposed or otherwise hazardous condition. All electrical boxes, cabinets, pole handholes, etc., which contain wiring, either energized or non-energized, shall be closed or shall have their covers in place and shall be locked when configured for locking, except when work is being done at the location at the moment. If the worksite is left, enclosures shall be closed and no potentially hazardous electrical situation shall be left unattended.

E.2 CONFINED SPACE ENTRY

The Contractor shall submit at the Pre Construction Meeting, a copy of the Contractors Confined Space Entry and Training Policy which shall be in full compliance with all OSHA requirements for the duration of this Contract. Employees shall be required to:

- Follow all general safety rules and regulations
- Abide by Confined Space Regulations
- Wear proper safety equipment at all times
- Report unsafe conditions to supervisory personnel and the Engineer
- Report any injuries sustained within a Confined Space.

The Contractor shall train and provide safety equipment to all field personnel that are involved with work within a space, as defined as Confined Space within the Training Policy. A listing of personnel who are trained or who will be trained for entry into confined spaces shall be included in the Pre-Construction Meeting submittal.

E.3 HAZARDOUS MATERIALS OPERATIONS:

All activity with contaminated waste shall conform to the Department's Standard Specifications for Road and Bridge Construction Article 669. The Contractor shall employ the services of, or have a full-service Sub-Contractor designated as the Hazardous Waste Contractor, familiar with and capable of complying with all Federal, State, or local regulatory requirements and regulations pertaining to RCRA hazardous and Special non-RCRA waste management and shall be responsible for ensuring the implementation of these requirements. The Hazardous Waste Contractor shall have a 24 hour emergency call number and shall be capable of responding to a Pump Station within one (1) hour of notification: No additional compensation will be allowed for these services.

The Supervisor shall direct the Hazardous Waste Contractor and other Contractor personnel as necessary to remove and properly dispose of oil, gasoline or other pollutants from the pump station wet pit or other area as directed. Removal shall be by means other than pumping pollutants into the normal station discharge sewer or receiving open water channel. (The Contractor may store suitable absorbent battens in a drum at each Pump Station which discharges to a waterway.)

The Contractor shall provide a list of proposed full service contractors, for Engineer-approval, at the Pre-Construction Meeting.

The Hazardous Waste Contractor shall:

- Coordinate with all pertinent regulatory agencies to secure all necessary permits and approvals and shall be responsible for coordinating all permits with the IEPA.

- Submit to the Engineer, for approval. A copy of all federal, state, or local required licensing documents to perform this work.

- Select a Hazardous/Special waste landfill/disposal facility, verifying that selected landfill/disposal facility is in compliance with applicable standards for hazardous and special waste and whether the disposal facility is presently, has previously been, or has never been, on the U.S. EPA's National Priorities List or the RCRA List of Violating Facilities.

- Obtain written approval of the selected landfill/disposal facility from the Engineer, who reserves the right to review and to accept or reject the selection.

- Perform all tests required and make all necessary arrangements for waste disposal approval with the selected landfill/disposal facility.

- Be responsible for transporting and disposing all material classified as a 'Special Waste' or Hazardous Waste' from the job site to the approved landfill/disposal facility assuring that the transporter and vehicles comply with all Federal, State, and local regulations governing the transportation of Special Waste and Hazardous Waste .

- Shall prepare a technical report within 30 days of the conclusion of the project, describing the activities conducted during the life of the project and submit two (2) copies to the Engineer.

E.4 TRAFFIC CONTROL SAFTY AND PLAN

Traffic Control and Safety - The Traffic Control shall be in accordance with the applicable sections of the Standard Specifications, the Supplemental Specification, the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways", any special details and Highway Standards contained in the plan, and the Traffic Control Plan for the Contract. The Contractor shall give special attention to Articles 107.09 and Division 700 of the Standard Specifications.

The governing factor in the execution and staging, of work is to provide the motoring public with the safest possible travel conditions on the road through the work zone. The Contractor shall arrange his operations to keep the closing of lanes to a minimum.

The Contractor shall request and gain approval from the Engineer twenty-four (24) hours in advance of all daily lane, and shoulder closures, and seventy-two (72) hours in advance of all permanent and weekend closures in Cook County.

The Contractor shall provide bound copies of the Traffic Control Plan for the Contract operations for all patrol vehicles, work crew vehicles, and supervisory vehicles.

The Contractor shall submit the name of the subcontractor for traffic control installation and maintenance if one shall be requested for use on this Contract at the Pre-Construction Meeting.

E.5 TRAFFIC PROTECTION

The Contractor shall not occupy any portion of the roadways during peak traffic periods from 6:00 A.M. to 9:00 A.M. and from 3:00 P.M. to 6:00 P.M., Monday through Friday, or at other times of peak traffic volumes when directed by the Engineer, except to respond to an emergency call, or upon approval from the Engineer. Twenty-four (24) hours prior to starting any major maintenance work on any roadway proper, a letter requesting Traffic Control Authorization shall be submitted to the Engineer for Approval. No work will be started on the roadway unless an approved authorization is on file in the Department. One lane of two-lane roadways, and at least one through lane in each direction on multilane highways, must be kept open for traffic, unless otherwise directed by the Engineer. These restrictions shall not apply when and for the time necessary to clear from the roadway damaged equipment, debris, or other objects which constitute a hazard.

The Contractor shall erect barricades, signs, cones, flags, and lights as may be required by Section 107.14 of the "Standard Specifications" to properly protect his workmen and the motoring public when repairs are being performed on or near the roadway. Number, type, color, size and placement of all traffic control devices shall conform to the "Manual on Uniform Traffic Control Devices for Highway Construction and Maintenance Operations" latest edition. Flagmen shall be supplied with suitable safety equipment as prescribed in the Department Safety Code. Should the Engineer require additional flagmen, they will be paid for in accordance with Section 9 of this Article. The expense to the Contractor in fulfilling the above obligations shall be considered as incidental to the contract and no extra compensation will be allowed except for extra flagmen required by the Engineer.

F. VEHICLE

F.1 GENERAL REQUIREMENT

The Contractor shall furnish transportation for his employees and equipment used in the performance of this Contract. All vehicles used by the Contractor shall conform to all applicable laws and safety code and shall carry such lights and safety appurtenances as may be prescribed by the Department. All vehicles are to be clearly identified by a decal with the Contractor's name, location and Contractor's phone number. The decal shall be readily visible on the exterior sides and rear of each vehicle. Removable magnetic signs or similar non-permanent identification is not permitted at any time. Sub-Contractor vehicles shall be held to the same requirements. Patrol cars, trucks, and supervisory cars operated by the Contractor in connection with this Contract shall be equipped with air conditioning, 2 power jacks, a cell phone, a Lap Top PC, a spotlight, a directional light bar, an utility tent (Pelsue Brand or an approved equal capable of quick setup by one person), all necessary test equipment as listed below, and a wireless field communications system to be approved by the Engineer. Supervisory vehicles shall also be equipped with cellular telephones, as a means of expediting and maintaining 24-hour communications with the Contractor's headquarters, field crews, and this Department.

This Contract shall include the Contractor furnishing (for the duration of the Contract) one (1) vehicle to be used by the Mechanical Electrical, Architectural and Landscaping Division. The

vehicle shall be of the type of a Chevrolet Traverse 2LT or approved equal and shall be of the current model year. The vehicle shall include power steering, four wheel anti-lock disc brakes, intermittent windshield wipers with washers both front and rear, 3.6 liter V6 engine, all wheel drive, automatic transmission, air conditioning, deep tinted windows, electric rear window defogger, four (4) door, instrument cluster with gages and trip odometer, navigation system, cargo security shade, driver information center with compass, AM/FM radio, amber safety lights (hide away type which shall be mounted in headlights and backup lights), remote start, auto-dimming mirrors, folding heated mirrors with integrated blind spot mirrors and power windows. The Contractor shall be responsible for all licensing, insurance for the vehicle and drivers, furnishing I-PASS units for the vehicle, all operating costs (gas, oil etc.), maintenance and repairs of the vehicles supplied. When maintenance or repairs are required for the vehicle the Contractor shall provide spare vehicle for use until the repairs and/or maintenance is completed. Depending on the type of maintenance that is required, the Contractor shall be required to pick up and return the vehicle.

Prior to the start of the contract period, the Contractor shall have all vehicles and equipment staged and available for inspection by the Engineer. The Engineer shall provide not less than five (5) calendar days advance notice to the Contractor of the desired inspection date.

These required fleet vehicles shall have no more than 60,000 certified odometer miles as of the beginning of the contract, January 1, 2014. If this contract is renewed for a second year, all required fleet vehicles shall have no more than 110,000 certified odometer miles as of January 1, 2015. Two bucket trucks shall be assigned to the County dedicated patrolmen to use daily. The buckets are to have hinged doors. One is for northern portion of the County and the other one is for southern portion of the County.

F.2 VEHICLE EQUIPMENT (PER VEHICLE)

- Lap-Top Computer, minimum 2.66 GHz, Intel Core 2 Dual Processor, power cords to run in vehicle, Carry-Bag operating all applications/software required for the Traffic Signal Systems, video detection and flashing beacons.
- Amp-Volt Meter.
- Loop Analyzer Model ILA-550.
- Conduit-Cable Locator.
- Light Source for Fiber Cable.
- Emergency Pre-emption Emitter.
- Fish Tape - 100 ft.
- Measuring Wheel.
- ASC-2S Controller.
- ASC-3 Controller.
- EPAC Controller.

- Eagle M50 Controller.
- EDI Conflict Monitor.
- EDI Malfunction Monitor (MMU 16E or better)
- Loop Amplifiers (shelf & rack) usable for both TS1 & TS2.
- Load Switches.
- Loop Splicing Equipment.
- Cabinet Keys & Locks.
- Relays, Fuses, Circuit Breakers.
- Paint – Yellow.
- Electric Drill - ½" chuck.
- Shovel.
- TS2 BIU.
- Cell-Phone Interface for PC.
- Stop Signs.
- Traffic Cones.
- Vacuum cleaner.
- Work Lights.
- Signal Heads, Pedestrian Heads.
- Pedestrian Pushbuttons.
- Service Door Covers.
- Bulbs.
- Bolt Cutters.
- Graffiti Removal Solvent.
- Extension Cord, 100 ft.
- Set of Tools.
- Cables, Uniducts
- Visors, Backplates
- Cabinet Fan, Filter.
- Cabinet Thermostat.
- Duct Seal.
- Cabinet Silicone Caulk.
- Digital Camera or Camera phone.

G. AVAILABLE TEST EQUIPMENT:

- O.T.D.R. Siecor Model 340 or equal with necessary modules capable of testing both single-mode and multi-mode fiber cable.
- 3-Point Ground Tester.
- Camera, Digital.
- Lane Closure Signing.
- Portable PROM Programmer Dataman 54 or equivalent.
- Lineman's test set Harris Dracon TS-21x89.
- Digital multimeter, true RMS multimeter, with case Tektronix TX3 or latest version.
- Wide band scope with case equal to or exceeding Halcyon704A-200 or W & G VF-I.
- Digital AC clamp on meter with case equal to or exceeding Fluke Model 30 or latest.
- Breakout box with case equal to or exceeding Black Box Model SAM232-6S.
- Hand held digital Oscilloscope equal to or exceeding Tektronix (THS710A) with spare battery and case or Latest version.
- Wide band TIMS/Signaling test set equal to or exceeding Halcyon 704A-400.
- Pipe and cable locator equal to or exceeding Nilsson Pipe And Cable Locator Model #715 with Nilsson 12 volt Rechargeable battery Model #110A or latest version.
- Clamp on ground resistance meter equal to or exceeding AEMC Model #3700 or latest version.
- Major Megger.

H. CONSTRUCTION TEST EQUIPMENT:

H.1 The Contractor shall own and maintain test equipment available for specialized maintenance testing at all times by Contractor's work crews, and given two (2) hour notice, for the Engineers use in inspecting the Contractor's work. All equipment shall be owned or under long-term lease to the Contractor.

The Contractor is expected to maintain all test equipment, in accordance with the manufacturers specifications at all times, including certified calibration by a responsible test lab. The equipment shall have the test lab's most recent calibration ticket attached.

The types of required test equipment as listed below shall be ready for inspection by the Engineer by January 2, 2014.

The Contractor shall submit an itemized list of all test equipment and copies of each instrument certification calibration at the Pre-Construction Meeting:

- LINEMAN'S TEST SET - Equal to Harris Dracon Model TS-21x89.
- TIME DOMAIN REFLECTOMETER - With case equal to Tektronix Model 1502B (metric version) with battery pack and chart recorder.
- RUSTRAK RANGER 11 POWER LOGGERS - Model RR2-123 or equal, with communications module or recording, monitoring, and reporting multimeters with current probe, and thermal probe.
- CLAMP-ON GROUND RESISTANCE METER AEMC Model 3700 or equal.
- AMPROBE AND DIGITAL MULTIMETERS - Equal to FLUKE, latest model.
- HOTSPOT LOCATOR - Equal to Probe Eye 6EMITST2LC Locator with battery and carrying kit
- LINEMAN'S TEST SET - Dracon Model TS-21 x89.
- BREAKOUT BOX WITH CASE - Equal to Black Box Model SAM232-6s.
- HANDHELD DIGITAL OSCILLOSCOPE - Equal to Tektronix (THS71 0A) with spare battery, case and charger.
- PIPE AND CABLE LOCATOR - Equal to Nilsson Pipe and Cable Locator, Model 715 with Nilsson 12 Volt Rechargeable Battery, Model 110A or latest.
- GROUND RESISTANCE TESTER - Equal to AEMC Model 3700 with AEMC 4500 test kit or latest.
- MAJOR MEGGER.
- DIGITAL TACHOMETER - Latest Model.
- SURVEY RODS-LEVEL - Round Fiberglass, 25'- 5 Section, D electric Certified.
- 4 CHANNEL GAS DETECTOR.
- DIGITAL LOW RESISTANCE OHMMETER.
- Fiber Optic light source and detector for testing both SM and MM fiber optic cables, Noyes Model SMLP 5-5 or equal.
- Signal Field Strength Meter with case equal to POTOMAC INSTRUMENTS, Model FIM-21.
- Triaxial Gauss Meter, equal to Bell Technologies, Model 4080 or better.

- Coaxial Cable Tester, equal to TWA Communication Model #62-204.
- Infrared thermometer, equal to Fluke 60 series or equivalent.
- Digital Multimeters, equal to Fluke 80 Series DMM or approved equal.
- Insulation Resistance Test Equipment, equal to Megger or approved equal.

The Contractor shall also maintain and repair, including furnishing and installing all necessary batteries, and calibrate, maintain and repair all County owned test equipment.

I. COMMUNICATION SET UP

I.1 The Contractor shall have in place a County wide wireless field communications system for the Contractor's maintenance fleet, (including all patrol, construction and supervisory vehicles), as well as for the Department personnel monitoring the Contract. The system shall be a multiple-location-infrastructure based, digital wireless communication system (trunked radio system with integral cellular telephone capability) as offered by Nextel or an approved equipment provider.

All units shall-have digital radio one-to-one and telephone communications service allowing the capability to initiate and receive calls in a direct connection from party to party, and dial telephone service, have numbers assigned by the local exchange carrier, a name and number called display, choice of ring or vibrate call notification, and have the capability of storing at least ninety-nine (99) preset numbers. The system shall provide voice-messaging capability to store at least ten (10) messages. Each communication unit and its accessory equipment shall be new, and shall be tested and approved by the Engineer prior to purchase or lease by the Contractor. Each unit shall have direct talk, unlimited voice, unlimited text, a minimum 2.0 megapixel camera, and e-mail service for photo transmission and labeling capability. Two of the communication units shall have data package. Also, each unit shall have a controlled keypad lockout feature such that, when activated, outbound dialing is restricted to the preset numbers or the capability to restrict telephone interconnects.

Cigarette lighter charger/adapters, AC recharging units in the form of cords, largest Lithium-Ion battery available, separate carry case or protector (unless flip-top model), belt carry attachment, hand free receivers equal or better than Verizon Wireless C781H, meeting all requirement of State laws and designed for the approved model, shall be provide for Department.. The Contractor shall furnish SIM cards, memory card, mobile web access, field e-mail access for data/photo transfer for each unit, one adaptor for memory card for connecting computer, all necessary cables, original CD with PC compatible software for the programming of numbers, name changes and other programmable functions and device necessary for the copying of SIM cards.

Following the award of the Contract the Contractor shall provide catalog cuts of the proposed unit(s). The Engineer shall agree with the Contractor on two proposed sample units for a one week trial. When a unit is found acceptable the Engineer shall notify the Contractor so the

delivery of the new units will meet a delivery date. If a sample unit is found acceptable the Engineer shall notify the Contractor so the delivery of the new units will meet the specified dates.

All units and the list of assigned call numbers shall be furnished to the Engineer by January 1, 2014. The units shall be new and the models shall be approved by the Engineer prior to purchase or lease by the Contractor.

The system shall have transmit and receive coverage throughout the complete geographic area of Cook County. The system shall have a central base established at the Contractor's 24 hour dispatch center or other location as approved by the Engineer. The system shall be operated such that all field response calls, both dispatch and response, are handled in an "all-call" mode which includes all in-service field response units, Contractor's supervisory units, County units, and the Contractors dispatch center. No extra compensation shall be granted to the Contractor for revisions required by the Engineer to provide complete coverage as specified.

Separate work groups such as knockdown re-set crews, which do not have regular field response responsibilities, may be separated from the "all-call" communications, but such work groups shall have wireless communications which County units can monitor, and County units shall also be capable of communicating with these units. When such groups communicate on a response incident, such communications shall be on the "all-call" group.

The system shall include digital one-to-one communications capabilities for the dispatch center, all of the Contractor's units and the County units. The system shall also incorporate various separate talk groups for special functions, as approved by the Engineer. County units shall basically mirror the Contractor's supervisory units relative to type and functionality.

The Contractor shall program and maintain up to nine (9) communication units as designated by the Engineer. The communication units shall be operated on the same frequency as the Contractor's maintenance vehicles. One (1) additional communication units is to be installed in the Offices of the Department in the County Building located in Downtown Chicago. The Contractor shall remove and reinstall (if required) communication units as designated by the Engineer. The Contractor is to furnish and maintain up to ten (10) communication units with built in cellular phone functions,two (2.0) megapixel camera, engineer approved method of photo transmission, for each unit, as well as email service as agreed by the Engineer for use by County Personnel.

The Contractor shall have the following telephone and data communication lines installed and fully operable with a list of assigned call numbers to be furnished to the Engineer by January 1, 2014.

- One (1) telephone line at the Dispatch Center for dial-up access to the Pump Station.
- One (1) dedicated telephone line at the Dispatch Center for receiving J.U.L.I.E. tickets.
- Two (2) telephone lines to monitor Econolite and Eagle traffic signal systems.
- One (1) T1 line for video monitoring of the traffic signal intersections.

The Contractor shall keep a list of all contract required telephone lines, their outlet locations, and applicable telephone numbers. The Contractor is responsible under routine maintenance for installation charges, monthly billing, number change charges, and any other related telephone installation charges.

J. CONTRACT FACILITY REQUIREMENTS

J.1 GENERAL REQUIREMENTS

At the time of bidding the Contractor shall have an established business presence in the County to assure the timeliness of the assumption of the contract work on the first day of the Contract.

The Contractor shall have and maintain adequate facilities at all times for the timely completion of work under this contract. These facilities shall include an EMIM office, 24-hour Dispatch Center and other permanent facilities, which may be strategically located, geographically, to support the Contractor's work force.

All Contractor's facilities shall be complete and ready for operation and inspection by the Engineer no later than December 23, 2013.

J.2 DISPATCH CENTER

Unless another location is approved by the Engineer, the Contractor shall maintain a staffed 24-hour dispatch at his headquarters, which may be used for other Contractor dispatch, but shall be adequately equipped and staffed to service this Contract on a first-priority basis. This dispatch center to be equipped with air conditioning, air cleaner, emergency lighting, fire and smoke detectors and an on-line (true) UPS system is required to provide clean power and backup electrical power for all dispatch electronic equipment capable of eight (8) hours of operation. A telephone answering service handling any calls other than the type of calls as required under this contract shall be deemed not acceptable under this contract. Call forwarding to other than the staffed 24 hour dispatch center at his base of operations is not allowed. A listing of two-way radio call numbers, cellular telephone numbers and pager telephone numbers shall be prepared and furnished to the Engineer two (2) weeks prior to the beginning of the Contract.

J.3 STORAGE FACILITY

The Contractor shall maintain adequate storage facilities and/or shops with at least three (3) shops and/or storage facilities with minimum of 1000 square feet strategically located in the region as follows:

1. In Cook County North of Devon Avenue and East of I-53,

2. In Cook County South of 135th Street.

3. Contractor's Main location.

The locations of which shall meet the approval of the Engineer, in connection with the performance of the Contract. The Engineer shall have the privilege of visiting such storage facilities and shops at any time. All Contractor's facilities shall be complete and ready for operation no later than December 23, 2013, ready for a demonstration inspection by the Engineer.

Each shop/storage facility shall be in a permanent building, provided with an office containing adequate heat, artificial lights, sanitary facilities, hot and cold potable water and air conditioning. The sanitary facilities shall be inside the shop storage facility and shall be maintained clean and in good working condition and stocked with lavatory and sanitary supplies at all times during the Contract. Portable office trailers and sanitary facilities are not acceptable. The office facilities shall not be shared with any other contractor. There shall be a desk with a chair, a meeting table with chairs for six (6) people, telephone and plain paper fax machine each with its own telephone line for use by the Contractor and the Engineer and his representatives. The County shall be furnished with keys to the shop/storage facility for use of the office if Contractor personnel are not present. The Contractor shall provide, at his main location a separate fenced in and locked area, with a minimum size of 50' x 75' for the exclusive use and storage of County equipment.

The Contractor shall comply with the instructions given by the Engineer relating to the care, storage, and marking of County Stock Inventory for identification purposes. All County Stock Inventory is to be kept in defined, separated areas from the Contractors owned stock of materials, parts, and equipment. The Engineer may require inside, protected storage of specified equipment.

All equipment, materials, miscellaneous items and component parts are to be furnished by the Contractor at his expense, unless otherwise specified by the Engineer, and shall be of the best grade of their respective kinds for the purpose. Replacements made to the Department's inventory by the Contractor shall be equal in quality or better in all respects than the original items. The Engineer shall decide the questions of equality. Whenever required by the specifications, or when called for by the Engineer, the Contractor shall furnish the Engineer for approval full information concerning the materials or articles which he contemplates incorporating in the work.

The Contractor shall supply and deliver to the County, in January, one (1) black and one (1) of each color toner cartridges for both of HP color LaserJet 3800 and CP3505n printer, cartridges for any other printer(s) the County shall add during the course of the Contract one (1) Seagate portable External Hard Drive 250GB, one(1) USB 2GB Mini Flash Drives, one(1) boxes of laser mailing labels 1 1/3" x 4" 14 per page, one(1) packs (250 sheet per package) of HP premium paper 32lb HPU1132 , one(1) reams of bright white high quality laser paper for use with the printers which is in addition to the paper supplied for the multipurpose machine specified below, one(1) rolls (250 labels per roll) of # CL-317-969-BK Matte Metallized Permanent Polyester Labels with Border, one (1) ink tape for Brady XCPLUS printer and

one(1) ink tapes for a Brady I. D. Pro Plus portable printer. The Contractor shall also furnish and maintain one (1) additional fax/copier/printer/scanner machine for use by the County and keep it supplied with paper and any other needed materials located in the office of the Cook County Department of Transportation and Highways in downtown Chicago. This machine is to be a HP Officejet Pro 8600 Premium or approved equal. The Contractor shall also furnish for use by the County a Canon Power Shot SX 260HS black Digital Camera Standard Kit, an extra Battery Pack, Battery Charger/Car Battery Cable Kit, two SPHC Memory Cards 4 GB, a Deluxe soft Case and a software reader suitable for use with Window 7.

Before the award of the Contract, the Engineer shall have the right to inspect the facilities as designated herein for the purpose of determining the ability of the low bidder to perform the services as required under this Contract.

K. CONTRACT TRANSITION

K.1 GENRERAL REQUIREMENTS:

It is the obligation of the Contractor to make every effort to facilitate a smooth transition from the prior Contract to this Contract. This may involve adjustments in ongoing operations to adjust to revised contract provisions or it may involve a start-up of operations and the assumption of maintenance responsibility if there is a change in Contractor. In either case, full professional cooperation by the Contractor is expected by the Department to assure that the Department's electrical systems remain continuously monitored and maintained. Furthermore, this obligation extends to the transition from this Contract to any subsequent contract. These responsibilities will be among the factors contributing to the Contractor's overall evaluation.

The Contractor shall assure the Department that at 12:01 a.m. on January 1, 2014 the maintenance transfer is complete and transparent to the public, that CCDOTH's electrical systems remain continuously monitored and maintained. It shall be recognized that the transfer and transition from one contract to the next will not be instantaneous with regard to all aspects of all systems. The Contractor shall cooperate fully to facilitate this transition period work including prompt communications, transfer of all County owned materials and documents, cooperation on access to all electrical system equipment, and the timely completion of authorized work.

The Contractor remains obligated for completion of all outstanding routine work and all authorized non-routine work. All applicable contract requirements shall remain in force for this work, unless otherwise directed by the Engineer.

All necessary equipment and/or services required for the transition shall be incidental to the contract routine maintenance unless otherwise noted as non-routine work herein.

K.2 LOCKS AND KEYS TRANSITION

The Contractor will be provided keys to system equipment including alarm keys and keys to traffic signal cabinets, railroad cabinets, lighting cabinets, high mast towers, pump station gates, doors and hatches, navigation equipment by the outgoing Contractor by December 31, 2013. The Contractor shall assure that at 12:01 AM on January 1, 2014, the maintenance transfer is complete and transparent to the public.

Padlocks for all pumping station doors, hatches, and gates shall be replaced by Jan. 31, 2014. All locks shall be keyed alike. The Contractor shall submit a catalog cut of the proposed locks as soon as possible after award of the Contract. Whenever it is necessary to change, replace or add new locks, the Contractor shall assume the cost of such new locks and keys. All existing, replacement and/or new locks added to the system are/shall become the property of the Department.

K.3 AEGIS ALARM SYSTEM TRANSITION

At 12:01 AM on January 1, 2014, the Contractor shall accept the transfer of the existing Pump Station AEGIS telephone line from the outgoing contractor. The Contractor shall assure that all units are functioning for emergency call-out to the receivers and shall supply and program PROM chips as required for each alarm transmitter unit, or arrange for transfer of the alarm notification telephone number, as necessary, to assure a functioning alarm system. By January 31, 2014 the Contractor shall have all pump station AEGIS proms programmed to the Contractor's AEGIS phone number. At the end of the Contract term(s) the call forwarding of the AEGIS telephone number shall only be terminated upon notification of the Engineer.

K.4 MAINTENANCE FACILITIES ALARM SYSTEMS TRANSITION

At 12:01 AM on. January 1, 2014, the Contractor shall accept the transfer of the existing Maintenance Facility Alarm Systems monitoring from the outgoing contractor. The Contractor shall assure that all District fire and burglar alarms are functioning for emergency call-out and arrange for transfer of the alarm monitoring, as necessary, to assure a functioning alarm system.

K.5 END OF CONTRACT TRANSITION

The Contractor shall deliver all County Stock Inventory on or before December 31, 2014 (or at the termination of this Contract), to the incoming contractor or the Department at locations designated by the Engineer. All items shall be accounted for from the latest Stock Inventory Report. The Contractor shall replace missing stock in kind (due to loss, theft, burglary, Contractor caused damage or use).

The Contractor shall cooperate with any new contractor during the transition to the next contract at the termination of this Contract. If necessary, locks and keys shall be transferred to a new contractor during December 2014 (or at the termination of this Contract) or at a date to be determined by the Engineer. The AEGIS telephone numbers shall not be terminated until Authorized by the Engineer.

During December 2014, the Contractor shall furnish to the County all uncompleted items and work orders from all contract years specified herein with date and plan for completion.

L. REGULAR WORK

Regular work shall be performed by the Contractor as authorized under section 10 of this article when directed by the Engineer.

5. DAMAGED PARTS, MATERIALS AND EQUIPMENT

Unless specifically noted herein as a non-routine item, the Contractor is responsible under routine maintenance, for the replacement with new or repaired parts or equipment, for all County maintained system equipment found damaged or malfunctioning for any reason, including vehicular caused damage, third party damage, vandalism, natural causes, or incidental damages on or affecting system equipment as caused by the failure or the fault of utility company equipment.

The Contractor is required to provide immediate corrective action and provide immediate temporary repairs to all systems, unless otherwise directed by the Engineer, regardless of the type of damage, or who caused the damage. Refer to Article IV for each type of system herein for specific time requirements.

Damaged equipment parts and materials shall be replaced with new or repaired equipment, previously approved by the Engineer, in equal quantities, which shall be identical to the original elements except as otherwise specified herein, or permitted by the Engineer. Materials used shall be suitable for the intended use.

All shoulder, or lane closures required for the response and repair of damaged system equipment is routine maintenance work and shall be in conformance with existing Departmental standards governing lane closures.

The Engineer shall have the sole determination as to whether material (equipment) is re-usable as system equipment. Except as otherwise indicated herein, all removed items remain property of the County.

The Contractor may not dispose (scrap) any materials without receiving prior approval from the Engineer in writing. If the materials are determined to be scrapped, the Engineer shall convey ownership of the scrap materials to the Contractor. Upon receiving the transfer of ownership, the

Contractor shall be responsible, at his expense, for the proper, legal disposal of all scrap items; materials, parts, equipment, etc. The estimated salvage value of scrap materials shall be reflected in the bid unit prices for routine maintenance items.

All lamps removed as part of re-lamping operation, outage repairs or other authorized work on any type of System shall become property of the Contractor and shall be disposed of in full compliance with Environmental Protection Agency (EPA) regulations. The EPA Rule 40 CFR, part 273, finalized in May 1995 established a guideline for the recycling of lamps and the mercury from scrapped lamps. Fluorescent, high-intensity, low pressure sodium, and other lamps bearing mercury may be classified as a potential hazardous waste.

The Contractor shall recycle removed lamps to the maximum extent possible and shall submit to the Engineer, for approval, the name and background of a qualified lamp recycling specialty service which shall be used for lamp recycling under this Contract. Over the course of the Contract, the Contractor shall provide documentation of all lamp recycling activity to the satisfaction of the Engineer.

6. REIMBURSEMENT FROM THIRD PARTY FOR REPAIR OF DAMAGES

The County reserves the right to make recovery from third party or parties for damage to any part of the installations or systems and no part of such recovery or recoveries shall inure to the benefit of the Contractor. As an exception, this provision shall not apply to damage to underground conduit, handhole, pull point, or cable inflicted by a third party.

To enable the County to assess damages against said third part or parties, the Contractor shall furnish the Engineer, an itemized statement of the cost of repairs, separating the cost of labor, materials, and equipment. In all cases the Contractor shall submit a Damage Report indicating damage done to all County-owned equipment.

Nothing herein shall be construed as relieving the Contractor of his obligation to take immediate corrective action and make emergency temporary repairs to any part of the installation or systems including underground conduit and cable as required under Scope of Work. The relationship of the third party to the County shall not relieve the Contractor of this obligation.

7. MAINTENANCE SCHEDULES

This section supplements Section 108 of the Standard Specifications.

A. The Engineer may present MAINTENANCE SCHEDULES to the Contractor, or may require the Contractor to present proposed schedules to him. Where schedules are required, the Contractor shall submit schedules a minimum of two (2) weeks before work begins.

B. Except as provided below, the Contractor shall complete all work items contained in MAINTENANCE SCHEDULES within the periods specified. Failure to complete the work items as specified is sufficient cause for the Department to collect liquidated damages as defined in Article III, Item 15.

C. The Contractor may request a change of the dates of MAINTENANCE SCHEDULES by submitting proposed changes in writing to the Engineer 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 Engineer.

D. The Contractor shall submit a "Maintenance Schedule Completion Report" on a form provided by the Engineer within two (2) working days after completion of each work item contained in the MAINTENANCE SCHEDULES.

Each form must be certified, notarized, and signed by the Contractor attesting to 1) completion in workmanlike manner, and (2) completion date of said work item.

8. ROUTINE MAINTENANCE

Routine Maintenance shall consist of the following, except as modified under individual items hereinafter.

A. Patrol and inspect each installation and system once every two (2) weeks or more often if so directed by the Engineer. The Contractor's personnel shall give a radio 10-7 call upon arrival at any location and give a radio 10-8 call upon leaving any location listed on the Contractor's maintenance schedule.

The Dispatch Center is required to keep a Patrol Route Maintenance Log which includes the arrival and departure times and the time and reason for patrolman departure from approved route inspection location and name of municipality or agency requesting the emergency service (Example: Accident with damage and traffic signal full outage - Schaumburg requesting the Emergency Service). All Patrol records shall be maintained and submitted to the Engineer weekly.

B. Prior to the beginning of each contract year, the Contractor shall submit for Engineer approval, a listing of daily patrol routes and schedules for all work requiring patrols, including the names and call numbers (applicable communication unit numbers) of patrolmen assigned to those routes.

The Contractor shall strictly adhere to the approved routes and schedules. The patrolling of a new location accepted for maintenance shall be instituted immediately. The Contractor shall immediately notify the Engineer, by fax or e-mail, of any changes in daily routes and schedules.

C. Test each system as detailed under the specific items.

D. Replace all burned out lamps and LED modules with new lamps or LED modules. All replacement lamps and LED modules shall be new and shall be of the same wattage and type as the lamps or

LED modules replaced, and of equal or better quality. LED modules shall be of the same manufacturer as the module being replaced.

E. Keep all of the various parts and components of the installations in proper alignment and adjustment at all times.

F. Clean the various parts and components of the installations as detailed under the specific items.

G. Take immediate corrective action to safeguard the public and the installations **AT ANY TIME, DAY OR NIGHT, WHEN ANY SYSTEM OR ANY PORTION THEREOF BECOMES INOPERATIVE, OR ANY UNIT OF THE SYSTEM HAS BEEN DAMAGED** from any cause whatsoever.

H. Report to the Engineer, by the fastest means of communication (a) any unauthorized work being performed by others affecting the system, (b) any other work in progress which may come to his attention and which may endanger any installation of the system, and (c) any emergency temporary repairs.

I. Make emergency temporary repairs and permanent repairs to the installations. Unless specifically authorized by the Engineer, permanent repairs shall be started not later than the first working day following emergency temporary repairs and shall be continued insofar as possible without interruption, until completion.

J. Respond to all emergency calls by the Engineer, and all calls by the Engineer to supervise additional installations by others or to locate underground cables or any other components of the systems to prevent damage by any proposed construction. The Contractor is to respond to all JULIE locates at no charge to the County. The Contractor shall furnish a dedicated phone line and space for a JULIE printer (to be furnished by CCDOTH). The Contractor shall review all the incoming JULIE tickets, evaluate all the tickets and take action within 24 hours to respond to the request for items that are maintained by CCDOTH. A log showing dates of tickets received and responses to the tickets shall be faxed to the County at the end of every month. To prevent damage and facilitate work by others, the Contractor shall promptly respond to calls requesting a locate of County owned electrical Systems at all locations. The Contractor is required to perform a locate of County owned underground cables or any other components, ONE TIME for each system location, per project or contract, as requested by the General Contractor of the construction project, before or after the transfer of maintenance responsibilities. Each request may involve multiple locations where separated electrical systems are involved. Markings shall be given with a horizontal tolerance of one foot to either side.

The Contractor is required to keep a log of all cable locate requests, and submit them to the Engineer as requested. This refers to County, IDOT and permit construction of all types of systems. The Contractor is responsible for multiple locates for utilities and other agencies.

K. Keep records of repairs and services to all serial-numbered pieces of equipment and make them available to the Engineer upon request. Keep records in the field books of all routine and preventive maintenance operation at the option of the Engineer.

L. Upon request by the Engineer, the Contractor is required to provide system access for other

contractors and consultants who have approved contracts to work on County equipment, to utility workers to read meters or do emergency repair, or for other special situations. Also, emergency or urgent situations occur which require the Contractor to provide personnel to conduct an immediate system or component inspection, travel to a designated location/installation to determine ownership, or travel to the site of a hazmat spill to oversee proper pump station operations. When requested by the Engineer, the Contractor is required to provide personnel labor, transportation and equipment to assist CCDOTH inspectors in their inspection of any portion of a system(s). In addition to the requirements of Article 105.08 of the Standard Specifications, the Contractor shall, under Routine Maintenance, perform various other coordination and assistance activities.

M. Keep incoming power service in proper condition at all times. The Contractor shall cooperate with the utility company in this matter. Maintain interconnection lines owned by the County. The Contractor shall cooperate with any utility company leasing interconnection lines to the County and perform such work at line terminals as may be required.

The Contractor shall:

1. Keep incoming power service in proper condition at all times. The Engineer shall be promptly notified for cases such as the planned disruption of service power to system equipment.

2. Monitor the condition of electric service wiring and equipment for all systems, telephone service wiring and equipment (at pumping stations and traffic signal systems only), water service piping and appurtenances (at pumping stations only), for all systems and facilities maintained under this contract. The Contractor shall maintain contacts with the respective utilities or providers for these services and shall coordinate with the utility and the Department to assure that services are installed in a timely manner, in compliance with requirements established for the service. Should any service require disruption due to repair or other work, the Engineer shall be promptly notified.

3. Fully coordinate access as required for inspection, modification work as applicable, repair work as necessary and other matters as necessary to assure continuity of services and proper revisions when needed. When new services are requested, the Department will generally initiate the request with the utility/provider and the Department will be responsible for utility service charges.

4. The Engineer may require the Contractor to inspect related non-system equipment, such as ComEd power lines, that may interfere with the functioning and/or maintenance of systems as covered in the contract.

5. Coordinate his work on this Contract to work with the utility company work. The fact that the Department separately arranges associated special work shall not be acceptable grounds for the Contractor's failure to coordinate the completion of other work. Such an example would be construction by a construction contractor and the necessary inspection of the required electrical ducts by the Contractor.

6. The Contractor shall assist the Engineer with the inspection of any work completed by others. Any unscheduled maintenance work performed, or necessary to be performed, to

any electrical system, as found on patrol, shall be immediately documented via radio to the Dispatch Center for entry as a Ticket.

N. Under Routine Maintenance the Engineer may require the Contractor to provide additional special patrols, inspections, and tests to confirm proper system equipment operation and/or collect information to define the nature of repetitious or intermittent system malfunctions. Also, the Engineer may require the Contractor to inspect related non-system equipment such as the proximity of Com Ed power lines that may interfere with the functioning and/or maintenance of systems as covered in the contract.

O. The Contractor shall cooperate with the Engineer and construction contractors with respect to transfers of maintenance on system elements and inspection of completed construction work for Department acceptance. The Contractor shall assist the Engineer and/or County Inspectors (prior to or at the transfer meeting) to make field equipment inspections of installations to be added or removed from routine maintenance to ascertain that the equipment and/or workmanship is in proper working order and verify equipment inventory quantities. It shall be the responsibility of the Contractor to furnish the Engineer with a written record of the total quantities of equipment by type or model, wattage, power center locations and other information as applicable for each location to be transferred on or off routine maintenance of the Contract. This information shall be faxed or e-mail to the Engineer within 24 hours of the maintenance transfer meeting. The Contractor shall attend the official joint transfer site meetings and shall fill out and sign any required Maintenance Transfer Forms or Equipment Inventory Forms. The Contractor shall provide the Engineer, a minimum of 24-hours in advance of the Maintenance Transfer Meeting, the names of the Contract personnel who shall be attending the meeting. The Engineer may request the Contractor provide new locks for system equipment at the maintenance transfer meeting.

1. Transfer of Location to the County - In examining construction work for acceptance by the Department, the Contractor shall advise the Engineer with respect to the completeness, workmanship, safety and maintainability of the installation, and the Engineer will make the final determination regarding acceptance. The Contractor is required to assume maintenance responsibility for system work accepted by the Engineer.

2. Transfer of Location from the County - Following the site meeting, if a corrective work list has been developed, the Contractor shall be required to correct any outstanding deficiencies though routine maintenance or unless otherwise permitted by the Engineer.

3. Transfer Documentation - Upon acceptance of routine maintenance responsibilities or transfer of maintenance responsibilities to another entity, the Contractor representative shall immediately radio the Dispatch Center to update any changes in maintenance responsibility for system locations. The Dispatch Center shall send a fax confirmation of the change to the Engineer. If the Contractor determines that the equipment is not working properly, the Contractor shall immediately notify the Engineer.

P. All interconnecting cable, conduit and handholes between various parts of the system shall be maintained by the Contractor.

Q. Repair or replace any part or parts of the systems damaged from any cause whatsoever, except extensive damage resulting from major disasters such as fires, floods, acts of public enemy or an Act of God*. *Act of God is as defined in Article 108.08 of the Standard Specifications.

R. All closed loop traffic signal systems shall be monitored on a daily basis from the traffic signal equipment repair shop, unless another location is approved by the Engineer.

S. Red-Light Running Camera Survey and Coordination: While performing patrol duties, for the duration of the Contract, the Contractor shall make note of any red-light running camera locations and agency responsible for their installation (known) and report the installations or removals to the County.

9. REPORTS AND FORMS

The following reports, in addition to other reports or forms, listed under the Scope of Work or elsewhere in the Contract shall be submitted when required.

A. Unsatisfactory Service Report - Failure to perform all functions in the manner specified herein or in Standard Specification and within any time limit specified may seriously jeopardize the welfare of the general motoring public. Should the Contractor refuse or fail to perform 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 Engineer will advise the Contractor in writing via a formal letter or email of an Unsatisfactory Service Report of the nature of unsatisfactory service. The Contractor shall respond back to the Engineer within five (5) working days from the time of receipt of the notice, explaining the reasons for the improper service and the remedial action being taken to resolve the problem.

If the situation warrant, the Engineer may take additional remedial action such as to assess liquidated damages, withhold payment of routine maintenance monies due the Contractor, suspend work, or de-authorize non-routine work.

A.1 Suspension of Work - If in the opinion of the Engineer any maintenance work performed on this Contract does not comply with the requirements of the Contract and/or as described in the Standard Specifications, the Engineer has the authority to order the immediate suspension of the work task. Depending on the offense, liquidated damages may also be assessed and/or withholding of funds due to the Contractor.

The Contractor shall receive notice, via the Unsatisfactory Service Report, e-mail or formal letter, explaining the non-compliance or omission of work. The Contractor shall respond back to the Engineer within twenty four (24) hours from the time of receipt of the notice, explaining the reasons for the improper service and the remedial action being taken to resolve the problem. The Contractor shall receive written approval from the Engineer before the Contractor can resume the specified work task.

A.2 De-Authorization of Work - If after two (2) written warnings, via a formal letter, email or

Unsatisfactory Service Report, a work item is not in Contract compliance, or work has not been completed per the agreed time frame, the Engineer may permanently suspend the Contractor's right to perform the requested task, per Article 108.07 of the Standard Specifications for Road and Bridge Construction, and will authorize the work to be performed by an outside contractor, by contract or otherwise, with the cost of that work deducted from the Contractor's monthly payment for routine maintenance.

It will be the Engineer's option to require the Contractor pay another contractor, as approved by the Engineer, for all corrective work in accordance with Article 109.05, with the Contractor's mark up deducted as liquidated damages. Failure to pay for the work within an allocated time limit shall require additional liquidated damage deductions from each subsequent monthly routine maintenance invoice until paid.

B. Condition Report - The Contractor shall submit to the engineer, when requested, a Condition Report showing the history of any item in the installation or system. This report shall contain the following information or such other information as required by the Engineer:

1. The general condition of the item, including the results of tests.

2. The record of any breakdown and of remedial action taken.

3. The Contractor's recommendation for corrective measures necessary to insure the proper performance of the item.

C. Inspection Report - The Contractor shall continuously be on the watch for system elements that are malfunctioning or in need of replacement. Malfunctioning equipment shall be repaired or replaced as part of routine maintenance. If the Contractor identifies system elements, which, due to age or normal wear and tear have become prone to recurring or imminent failure or which otherwise pose a significant liability or a safety risk, the Contractor may recommend replacement or repair by faxing or e-mail an Inspection Report to the Engineer.

The Engineer reserves the right to determine a course of action for any identified condition. When the Engineer concurs with the Contractor's basic recommendations, a non-routine authorization will be issued for the material portion of the repair and this will reduce the Contractor's routine maintenance obligation to the labor necessary to replace the deteriorated system element.

If components fail, in the absence of an Inspection Report received, or if an Inspection Report had been submitted by the Contractor but the item was not acknowledged by the Engineer as prone to recurring or imminent failure or a safety risk, then the Contractor is obligated for the full cost of replacement or repair under routine maintenance. Such obligation is not limited only to individual components but may extend to the multiples of components at a location(s).

If system elements fail or are observed by the Engineer to be causing recurring failures or imminent safety hazards, and the Engineer has determined that the deteriorated condition is due to neglectful maintenance on the part of this Contractor, all remedial work shall be performed as routine maintenance.

D. Report Submittals – All reports required under this Contract, shall be submitted or returned to the Engineer within ten (10) working days after being requested, unless otherwise specified.

E. Telephone Report - Whenever defective, non-operative, or damaged equipment is reported to the Contractor by telephone or radio, a sequentially numbered report shall be initiated. Copies of said reports shall be provided to the Engineer weekly.

The Contractor shall within 1 hour of receipt of information, record the following ticket information:

- name of informant and call back number
- time of departure
- time of arrival at scene
- problem found(including unit number of effected equipment)
- time incident is cleared
- description of work completed at scene
- follow-up work necessary
- police accident information, if known
- clearing information
- notify proper maintainer of equipment malfunction or problem
- call received
- call dispatched

F. Work Order - Whenever a copy of a Report is required as provided above, copies of the Work Orders issued to correct the defect shall be provided to the Engineer weekly after completion of the work. The copy of the Work Order shall show the defects found, and the action taken to correct the defects, and in addition, shall show the Report number associated therewith. The form of the copy of the Work Order shall be as required by the Engineer.

G. Corrective Action Report - When damage or outages are reported to the Contractor by telephone from the Department, a report of completion of Immediate Corrective Action shall be telephoned to the Engineer immediately upon completion.

10. REGULAR WORK

The Engineer may authorize the Contractor to perform Regular work and furnish the necessary materials and parts provided that the 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. Authorization for Regular work shall be given by the Engineer in writing and when so authorized shall be performed by force account with a completion date. If the work is not finished by the completion date the installation where the work is being performed will be removed from the County's maintenance responsibility unless the Contractor requests in writing, with sufficient reason, for an extension of time and this time is granted by the County. If taken off of County Maintenance, the Contractor shall maintain the installation at no cost to CCDOTH until all work is finished and accepted by CCDOTH. Failure to complete the work items as specified is sufficient cause for the Department to collect liquidated damages as defined in Article III, Item 15. It will be the Engineer's option to require the Contractor pay another contractor, as approved by the Engineer, for all corrective work as defined in liquidated damages. Failure to pay for the work within an allocated time limit shall require additional liquidated damage deductions until paid. Regular work to repair damages to equipment of installations or systems caused by Department personnel in the performance of their assigned duties shall be paid for by the Department, CLAIMS FOR REGULAR WORK WHICH HAVE NOT BEEN AUTHORIZED BY THE ENGINEER SHALL BE REJECTED.

A. The Department reserves the right to furnish any or all of the materials or parts for Regular work, in which case no charge for items so furnished shall be made by the Contractor. Materials or parts furnished by the Department may be from the "Department's Inventory of Parts and Materials" or from other stock maintained by the Department.

B. When the Contractor is authorized to furnish both materials and labor, at the direction of the Engineer, as an expediency, parts may be taken from the Department's Inventory of Parts and Materials." The Contractor shall then replace the items used as previously provided in Article III. The invoices for all materials used to replace items taken from the inventory shall show the entire cost of each item including any freight charges. No freight charges, other than those shown on original bills, shall be allowed the Contractor for transportation of materials. A mark-up of fifteen (15) percent per Article109.04(b)(3) of the Standard Specifications is allowed for material costs, which shall include any shipping and handling fees shown on the original bills.

C. The Department is under no obligation to authorize any non-routine work. The Department shall authorize unit price work wherever possible, as meets the system needs, or unit price work in addition to agreed price or force account work for the same project/location, if in the best interest of the Department.

D. Regular work will be paid for as either (1) the estimate submitted by the Contractor prior to the performance of work, or (2) the force account basis as calculated in accordance with the below paragraph.

E. All Regular work will be paid for in the following manner:

E.1 Unit price (PAY ITEM) regular work shall consist of work which has been authorized based upon the Unit price (PAY ITEM) bid on this contract for the various regular work items.

E.2 Agreed-Price Authorizations: Agreed-price regular work shall consist of work for which bid price are not applicable. The Contractor shall submit an estimated quote for agreed price work with a note of "not to exceed price" prior to the beginning of a job, when quantities are estimated. If specifically requested by the Engineer, the Contractor shall submit a fixed, agreed price quote for the necessary work. The Contractor shall enter all agreed price regular work authorizations within five (5) working days of the Engineer request. One quote shall be necessary for each regular work authorization letter. The agreed price submitted to the Department should take into account the expected completion date of the work.

E.3 Force Account Authorizations: Force Account Work shall consist of work for which an agreed price cannot be established between the Engineer and the Contractor. The Engineer may direct the Contractor to perform any non-routine work as force account work which shall be measured and paid as described in Article 109.04(b) of the Standard Specifications. A daily time/work accounting, with the name of each individual, shall be kept on the daily general billing log, which shall be signed by the Contractor's field supervisor and submitted to the Engineer at the completion of each work day for the authorized work. A summary of all daily general billing logs, as well as proper documentation of materials used, shall be submitted to the Engineer within seven (7) working days following the completion of work. A general foreman's time will not be billable on force account work unless there are more than five (5) additional crew workers employed at any one time, place and job and then only with the prior approval of the Engineer. A mark-up of fifteen (15) percent is allowed for material costs, which shall include any shipping and handling fees. The Contractor shall not be allowed overtime and/or prime time billing unless prior approval is received from the Engineer.

E.4 In compliance with all of the requirements of Article 109.04 of the Standard Specifications.

E.5 Subcontracting: For portions of Regular work performed by approved subcontractor, the Contractor shall submit to the Department in writing the name of the Subcontractor he intends to utilize prior to performance of said work. The Department retains the right to reject or approve said Subcontractor before the work is performed. The Contractor shall submit a true copy of the Subcontractor's invoice to which cost shall be added as specified in article 109.04 (b) (7) of the Standard Specifications.

E.6 Expenses Incurred by the Department: In accordance with Article 109.05 of the Standard Specifications for Road and Bridge construction, as hereby modified, upon written request of the Engineer, the Contractor shall pay the bills for specialty service work and/or expenses incurred by the Department. The Contractor shall be paid administrative costs of an amount equal to five (5) percent of the first $10,000, with a minimum of $ 100.00, and the Department shall allow an additional one (1) percent of

any amount over $10,000 of the total approved costs, for an individual work authorization. This work shall be authorized on an EMCMS estimated authorization letter.

11. PAINTING

Painting of traffic signal installations, flashing beacons, and light standards, shall be done in accordance with Section 851 of the Standard Specifications, with the following modifications and except as modified under the individual items hereinafter.

A. Cleaning the work shall consist of removing all rust and scaling paint.

B. All bare spots shall be spot painted with Duro Brand "Extend" rust treatment.

C. All bare spots shall then be spot painted with a rust preventive primer.

D. All surfaces shall be given two coats of approved paint, color to be determined by the Engineer.

E. The Contractor shall stencil the date of painting on the controller cabinet if it is painted, or on the controller foundation if the controller cabinet is unpainted.

12. CONTRACTOR'S RESPONSIBILITY FOR MATERIAL AND EQUIPMENT OWNED BY THE DEPARTMENT

A. To facilitate prompt repairs, the Department has on hand a stock of parts, materials, and equipment to be used exclusively in the maintenance of the installations and systems. The Contractor shall use CCDOTH inventoried equipment only when directed by the Engineer in writing or by fax.

B. The Contractor shall conduct an audit of the County Stock Inventory as of January 1, 2014, and create an initial County Stock Inventory Report, accounting for all parts, materials and equipment. After approval signature of the principal of the company and the Engineer, the Contractor shall have full responsibility for all County Stock Inventory on the January 1, 2014, County Stock Inventory Report, including the reporting of use, disbursements or receipts

C. All county stock inventory shall be clearly identified and physically separated from the storage of Contractor-owned materials and equipment. County stock shall be kept screened or fenced, with locked access.

D. The Contractor shall use County stock only when directed and approved by the Engineer. The Department is not obligated to furnish specific parts or equipment in the County stock inventory for Contractor to use. The Contractor may not use any County stock inventory for any work outside the scope of this contract.

E. The Contractor, within a reasonable time after the use of any parts, materials, or equipment shall replace said parts, materials or equipment with items of equal or better quality and in quantities used. A reasonable time as used in this section shall be determined by the Engineer, based on facts submitted by the Contractor concerning availability of items used, delivery schedules, or his efforts to procure the items.

F. The Engineer at his discretion may increase or decrease the quantities or kinds of parts, materials or equipment supplied by the Contractor.

G. All parts, materials, and equipment furnished to the Contractor shall be transported by him at his sole expense, to his warehouse, shops, or sites, where such materials and equipment are to be stored, repaired, or used. Upon receipt of such parts, materials, and equipment, the Contractor shall acknowledge receipt thereof on forms and furnish to the Engineer.

H. The parts, materials, and equipment furnished by the Department and stored by the Contractor at his facilities and at the County facility shall constitute the Department's Stock Inventory as used herein.

I. The Contractor shall maintain a perpetual inventory of parts and equipment used in the maintenance of the installations and systems furnished him by the Department, and shall furnish the Engineer a copy of this inventory at the end of each month. The inventory shall include the type and location of any equipment installed as temporary replacements for equipment being repaired.

J. The parts, materials, and equipment furnished by other contractors due to under construction projects and stored at the Contractor facilities. A receipt ticket shall be issued to the contractor and fax to the Engineer. The ticket shall include the location and type of any equipment, serial numbers, and model numbers. This shall be included in the monthly County Stock Inventory Report.

K. The Engineer shall have the privilege of visiting storage facilities and shops at any time for the purpose of examining the inventory of County-owned parts and equipment. The Contractor shall comply with any instructions given by the Engineer relating to the care, storage and marking of County-owned parts and equipment for identification purposes.

L. The Contractor shall keep an Engineer approved current database of all County Stock Inventory information, including stock totals, material reservations, receipts, and disbursements for each electrical system, and shall include information as to size, type, manufacturer, location (including all materials at the warehouse facility, shop facilities, etc.) and state of repair of all parts and equipment, as well as a record of where the prior months' stock was utilized, by staging area category of routine or non-routine maintenance, and Contract number if applicable.

M. A monthly County Stock Inventory Report from the Contractor shall be sent to the Engineer by the 5th day of the following month. The County Stock Inventory Report shall be signed by the person directly accountable for the accuracy of same and an officer of the firm with a statement attesting to the accuracy of the report and proper use of the inventory. The Contractor is required to retain all inventory records for a period of 5-years following the completion of the Contract.

N. If the report submittal is not timely, or significant errors are found, there will be withholding of the routine maintenance payment to the Contractor.

O. Nothing herein shall be construed as obligating the Department to furnish any parts.

P. At the termination of the contract, the Contractor shall be solely responsible for any replacements required due to loss, theft, burglary, damage or destruction from any cause whatsoever, of any and all such parts, materials and equipment.

Q. The Contractor shall provide the Engineer on December 1, 2014 (or December 1, 2015 if this contract is renewed) a list of all County stock inventory and its applicable location that is in his possession on that day. All stock inventory and/or other equipment or materials owned by County in the possession of the Contractor shall be moved to locations as designated by the Engineer, by a date to be specified by the Engineer (during December). The Contractor also shall provide all labor and equipment as necessary to relocate any County equipment (stock) to new facilities. The Contractor shall use his own spare parts for contract work for the remaining days of the term of the Contract.

R. Regular work Inspection: Following a field inspection, if all required documentation of work has been received, and record drawings submitted if requested, the Engineer shall enter the final pay item quantities, work inspection approval date, and the Engineer approval in the final Inspection Report. This final Inspection Report is transmitted to the Contractor. In cases where deficiencies are found at the inspection of the Contractor's work, the Engineer shall issue an inspection report to the Contractor. The Contractor should view the report in order to promptly address any work deficiencies. When the Contractor has completed the work deficiencies, the Contractor shall notify the Engineer that the work is ready to be re-inspected.

S. The Engineer may waive the physical field inspection of any work if he believes the completion to be reasonably demonstrated by performance of the system, electronic monitoring, or other means. In such cases, the Engineer reserves the right to follow-up and/or selective spot inspections, and if evidence of prior incomplete or incorrect work is found, the Contractor shall remain responsible for corrective action and open to liquidated damages and/or payment withholding as provided elsewhere herein.

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

A. A description of the equipment unit or item to be added or removed.

B. The location of the equipment, unit or item.

C. The revised totals of the respective item as shown in the Schedule of Prices.

D. Effective date of change.

E. The "start and completion dates" for any items subject to MAINTENANCE SCHEDULES, either under Routine Maintenance or to be completed for a unit price.

In case of installation of new equipment to be added to this Contract, the Contractor shall make such inspection as is necessary at the time of actuation to ascertain that the equipment is in working order. In the event the Contractor feels that the equipment is not in proper working order, he shall notify the Engineer in writing within six (6) working days. If, upon the expiration of the 6 working days, the Contractor has failed to notify the Engineer that the equipment is not in proper working order, it shall constitute acceptance of the responsibility for maintenance. It is immaterial whether or not the new equipment to be added to the Contract has been accepted by the Department; the Contractor shall monitor the operation prior to the time of acceptance by the Department. In addition, at no extra cost to the Department, the Contractor shall notify the Engineer concerning matters pertaining to failure of parts, guarantee periods, failure due to faulty construction and knockdowns. This provision is an exception to Section 107.30 of Standard Specifications.

14. METHOD OF BILLING

Quantities included for bidding are only estimates and actual quantities may vary. Unpredictable factors will cause variances from these indicated quantities, both for routine maintenance pay items as well as non-routine maintenance pay items. Payment to the Contractor awarded the Contract will be made only for actual quantities of work performed and accepted or materials furnished according to the Contact. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased or omitted.

The Contractor's unit prices are expected to be realistic and no additional compensation will be allowed due to a variance in quantities; however, the Engineer retains the right to seek a revised unit price where quantities exceed estimated quantities to the extent that additional economies of scale would be

normal. The Engineer also retains the right to use force account procedures or use other procurement means available to the Department where unit prices reflect pricing significantly higher than Department project norms. The Contractor is cautioned against unbalanced bidding and is directed to Article 102 of the Standard Specifications.

Within ten (10) days following the receipt of the monthly Routine Maintenance Listing, the Contractor shall submit invoices in duplicate to the Engineer.

The invoice shall contain each of the several installations and systems for the Routine Maintenance performed under this Contract at the unit prices stated in the Schedule of Prices, and the items shall be listed in the order contained in the Schedule of Prices.

Billings 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 new installations completed and activated, and installations on which the Department has accepted maintenance responsibility any time during the month shall be billed to cover the entire month. Equipment that has been inactivated, eliminated or on which the Department has relinquished maintenance responsibility at any time during the month shall be considered not maintained for the entire month and will not be billed for the month.

Separate invoices to the Engineer shall be submitted by the 25th of each month for each of the several installations or systems for work performed by the Contractor during the previous month, when the work is paid for on a per-month basis or is on a schedule requiring a monthly work accomplishment.

Separate invoices to the Engineer shall be submitted by the 25th of each month for Item BU for work performed by the Contractor during the previous month. Such invoices shall identify the equipment repaired by location, pole number, or work order number, and shall show the total number of items billed at the unit prices in the schedule of prices.

Each Regular work shall be inspected and accepted by the Engineer before billing for the cost of Regular work.

Separate invoices to the Engineer shall be submitted no later than thirty (30) calendar days after completion of the work for Regular work and work performed for a unit price when the work is to be performed once per authorization. Each invoice shall show the date of authorization for the work and shall not be prorated.

Each invoice shall have a notarized certification by the Contractor to the effect that the work shown thereon has been complete in accordance with the provisions of the Contract and all applicable specifications.

The Engineer may withhold up to 100% of the total monthly routine maintenance payment for all systems for the incomplete or otherwise unsatisfactory performance on any system, including but not limited to failure to respond to reported incidents in a timely manner, perform proper field maintenance, complete authorized work, or document dispatch or response work activities in the time and/or manner specified herein.

After previously uncompleted or deficient work has been substantially completed to the satisfaction of the Engineer, the Contractor shall advise the Engineer in writing, requesting the release of funds previously withheld. The Engineer shall approve the release of funds previously withheld from the Contractor through an authorization letter.

15. DELAYS IN PROSECUTION OF WORK - LIQUIDATED DAMAGES

Whereas, the Contractor is obligated to assure that the various items of equipment in the installations and systems perform properly; whereas, maintenance operations to 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 which schedules 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 motoring public, the Contractor agrees that should he 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 Engineer at his direction 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 Engineer, (2) Remove the installation from the County's maintenance to the Contractor's maintenance responsibility until said work is completed and inspected by this Department, (3) Deduct a proportionate amount of money for work not performed on any installation or system from any monthly or final remittance due to the Contractor with the amount of money deducted to be determined by the Engineer, (4) 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 and prosecute the same to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the Department for any excess cost, occasioned by the department, it will be the Engineer's option to require the Contractor pay another contractor, (as approved by the Engineer) for the corrective work, the actual time and materials cost of which shall be deducted from the Contractor monthly routine maintenance payment as liquidated damages. (5) If in the option of the Engineer any work performed on this Contract may seriously jeopardize the welfare of the general motoring public, the Engineer has the authority to order the immediate suspension of the work task. Depending on the offense, the Engineer may withhold all or a portion of the monthly routine maintenance payment due to the Contractor, liquidated damages (6) Assess liquidated damages; if any work covered by maintenance schedules in any of the installations or systems, or if any other work which under this Contract is to be completed by a certain date or at the expiration of a certain time interval, shall remain uncompleted after such date or the expiration of such time interval, or after any authorized extension of such stipulated time, the Contractor expressly agrees to pay to the Department the sum as specified in Special Provision for "Failure To Complete The Work On Time" found elsewhere in this Contract for each and every Calendar Day and for each and every item of such work remaining uncompleted, and such monies shall be paid as liquidated damages to partially cover losses and expense 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 to the Contractor, and if said monies are insufficient to cover said

damages, then the Contractor or the sureties shall pay such amount due. In any of the above instances, the right of the Contractor to proceed shall not be terminated because of any unavoidable delay in the completion of the work caused by the Department, other Contractors employed by the Department or unforeseeable causes beyond the control and without the fault or negligence of the Contractor. The Contractor shall as soon as practicable notify the Engineer in writing of the cause of such delay, if any, and request of the Engineer in writing, such additional time or relief as he may deem necessary.

The liquidate damages shall be assessed initially per incident. If that incident continues, the per day will be assessed in addition to the per incident assessment.

Liquidated Damage Assessment

Per Day	Per Incident	Per Contract Specifications:
NA	$ 1,000.00	Failure to Respond, Per Ticket or Per Engineer Direction
$ 200.00	$ 500.00	Failure to Respond, Per Time Specifications (Refer to System Articles herein)
$ 200.00	$ 500.00	Failure to Provide Timely Routine Repairs and/or Meet Non-Routine Work Due Dates
$ 200.00	$ 1,000.00	Failure to Provide Documentation (Authorizations, Ticket Information, Reports, Submittals for Routine or Non-Routine Work)
$ 200.00	$ 500.00	Failure to Supply Replacement Parts
$ 200.00	$ 500.00	Failure to Provide Proper Service
$ 200.00	$ 500.00	Failure to Follow Specified Procedures
$ 200.00	$ 500.00	Failure to Provide Proper Staffing
$ 200.00	$ 500.00	Improper Use of Materials or Methods
$ 500.00	$ 1,000.00	Failure to Replace CCDOTH Stock
$ 500.00	$ 3,000.00	Failure to Return CCDOTH Stock at End of Contract

III SPECIAL PROVISIONS

Item A TRAFFIC SIGNAL INSTALLATIONS ROUTINE MAINTENANCE

In addition to the requirements listed above as **ROUTINE MAINTENANCE**, the following shall be part of this item:

Check, test, and service each installation once every two (2) weeks, or more often if so directed by the Engineer, to assure that each installation and component part is functioning properly and efficiently.

1) **Traffic Components, Controller And Cabinet Inspection:**

Check for alignment of signal heads, posts, mast arm poles, control cabinet, check for light outages, and check all visors, backplates, masking of optically programmed faces and general operation. Repair or replace all worn, missing or damaged components within the time limits specified. All poles, foundations, posts and astro brackets must be straightened to be vertically plumb.

Check all anchor bolts for mast arm poles, signal posts, controller cabinets, and, in addition, all bolts used to attach the mast arm to the pole.

Replace missing or damaged bolt covers, mast arm shrouds and handhole access covers. Tighten screws related to signal post bases, backplates, anchor bolt covers, handhole access covers, service installation covers and controller cabinets.

Repair or replace any failed or damaged signal components including signal controllers, cabinets or peripheral equipment, signal heads or mounting hardware, posts or mast arms, illuminated signs, uninterruptible power supply backup battery, detectors (vehicle and pedestrian), grounds, cable, conduits and other appurtenances which are part of a signal installation except those items which have been added under permit and for which the County has not assumed maintenance responsibility.

The Contractor shall at all times maintain stock of sufficient materials and equipment to make temporary and permanent repairs.

The Contractor shall provide signal operating inspection tasks upon request such as:

i) Inspect the timing operation of a signal installation at a specified time period and provide a recommendation for improving traffic flow.

ii) Program timing parameter changes.

iii) Determine the phasing or operation of a signalized installation.

iv) Check the condition or verify the presence of equipment at a signalized location.

v) Provide a copy of timing parameters in use at a signalized location.

vi) Provide recommendations to improve the safety or the operations of a signalized location.

vii) Provide a compiled list of all locations meeting specified criteria.

All controllers to be checked, which will include visually inspecting all timing intervals, coordination programs, clocks, vehicle and system detectors, pedestrian push buttons, photo cells for LED street name signs, box prints, cable logs, manuals, relays, backup battery system for the intersection and railroad and emergency vehicle pre-emption equipment (including testing of railroad and emergency vehicle pre-emption using test switches) to ensure that all are functioning properly. The cost of repairing or replacing the emergency vehicle pre-emption equipment shall be invoiced, by the Contractor, directly to the local agency, as instructed by the Engineer. The Contractor shall notify the agency immediately that their pre-emption equipment is not operating and ask if immediate repairs are requested or if an estimate of repairs is necessary before repair work is provided.

Uninterruptible Power Supply (UPS) shall be tested to assure proper operation of the traffic signals upon loss of normal electric utility power. Manual transfer and power loss transfer shall be tested which shall not put the signal in flash. Nominal output voltage and current along with battery string voltage shall be measured and compared to manufacturer's expected values and recorded. Batteries not meeting minimum ratings and capacities shall be replaced under routine maintenance.

Keep the interior of all control cabinets clean, neat and in a workmanlike condition at all times and make sure duct seal is in place over all conduit openings. Remove the dust from the interiors of controller cabinets with a brush and vacuum cleaner. The Contractor is responsible for removing posters and graffiti as soon as it is found from controller cabinets and all components of the traffic signal installations and shall repaint as necessary and as directed by the Engineer. Change the air filters in controller cabinets at least once every three (3) months, or more often if so directed by the Engineer at specific locations.

The Contractor shall replace the backup battery in an all solid state intersection controllers and master controllers and flasher controllers during July in even years. The new battery shall meet the minimum requirements of the controller manufacturer.

All traffic signal posts that are knocked down are to be replaced by a new galvanized post and galvanized base. Painted and galvanized are not allowed on the same post.

All illuminated signs that are knocked down are to be replaced by new or repaired parts. Signs with LED modules should be replaced with LED modules of the same make to minimize performance differences, unless directed otherwise by the Engineer.

Maintain proper timing of the control equipment, and of dial settings, detector relays, and amplifiers, as directed by the Engineer or as dictated by changes in traffic volumes. The Contractor is responsible to perform adjustments to the traffic signal timings to address observed operational issues. All timing changes made on closed loop systems are to be approved by the Engineer.

2) <u>Repair of Signal Lamp and LED sign Lamp Outages:</u>

Replace all burned out lamps/modules and damaged sockets within ONE HOUR if less than two far lamps/modules are lit for one movement, and within ONE HOUR for all pedestrian signals and illuminated signs. All replacement lamps/modules shall be of the type and wattage specified below. If two or more far signal indications remain in operation for each vehicle phase (movement), the replacement of the burned out lamp, modules or damaged socket shall be accomplished within one (1)

working day. Immediate corrective action must be provided if only a single signal indication remains in operation for any vehicle phase. At the time of replacement of a burned out lamp/module or lamps/modules, the reflector and lens shall be cleaned. Lamps in other than traffic signals shall be group replaced, replacing all similar lamps in the unit containing the burned out lamp. Burned out controller indicator lamps, LED and LCD displays shall be replaced as discovered. LED signal sections are to be replaced with LED signal section with LED modules of the same make.

3) **Signal Damage Equipment Replacement:**

The location of a temporary or permanent traffic signal head installation shall also meet the requirement of the Manual on Uniform Traffic Control Devices. Two far signal heads facing each through traffic approach, two signal faces directed toward any right or left turn movement and two pedestrian signal faces for each crossing shall be considered the minimum acceptable signal operation pending permanent repairs.

Where the distance from the stop bar to the far signal is greater than 150 feet, a near right signal shall also be maintained. Signal faces for through traffic on any approach shall not be less than eight feet apart measured horizontally between center lines of face with a minimum mounting height of seventeen feet above the crown of pavement surface. See the Standard Detail Sheets for additional mounting requirements.

A temporary signal face shall contain the same type, number and size of lenses as the signal face being replaced. Twelve inch sections shall be used to replace eight inch sections.

LED modules should be replaced with LED modules of the same make to minimize performance differences, unless directed otherwise by the Engineer.

Damaged signal heads including pedestrian signal shall be replaced in-kind. Incandescent shall replace incandescent; LED's shall replace LED's; new pedestrian count-downs shall replace pedestrian count-down types, etc.

Locations where pedestrian signal indications are present one (1) pedestrian signal head must face each direction of a pedestrian crosswalk.

4) **Power Outages and Flashing Operation Procedures:**

When repairs at a signalized intersection require that the controller be disconnected and if power is available, the Contractor shall place the intersection on flashing operation. Install a flasher if none is provided in the controller cabinet. The signal shall flash red for all directions unless a different flashing indication has been directed by the Engineer.

At signal installations where power is not available, due to a power failure, or a flasher must be installed, the Contractor shall first place at least one "Stop" sign, Illinois standard Sign R1-1-30x30 on each approach to the intersection as a temporary means of regulating traffic except for those approaches to which a flashing yellow indication will be shown. The stop sign shall be located at the stop bar and mounted at a height of 5-ft above curb or shoulder with a set-back of 12-ft from travel

pavement unless otherwise directed by the Engineer. The Contractor when installing temporary stop signs must switch the controller to the flashing operation when responding to a power failure. If the approach flash is yellow, the Contractor is not to place a temporary stop sign unless the flashing operation is changed to red by direction of the Engineer. The Contractor shall furnish and equip all vehicles involved with the maintenance of traffic signal installations with a sufficient number of stop signs to be erected as specified herein.

Refer to Article III General Contract Policy - Emergency Response and Call-Out Policy for response and repair time requirement.

In case of failure from any cause whatsoever of new equipment being maintained prior to ultimate approval or while under guarantee, the Contractor shall install spare control equipment as approved by the Engineer. The faulty equipment shall be taken to the Contractor's shop and the Contractor shall notify the Engineer. The Engineer will notify the installing Contractor or distributor of the failure, and that the equipment is to be picked up, repaired, and returned to the Contractor.

5) New, Revised or Transferred Traffic Signal and Flashing Beacon Inspections:

The Contractor shall furnish a trained representative for each traffic signal inspection that requires a new or existing traffic signal installation to be added to the Contract or the transfer of an existing traffic signal installation of this Contract to another agency or contractor. Refer also to transfer requirements in the previous Article.
The Contractor shall:

i) Analyze all induction loop detector loops at the controller cabinet insuring that each detector loop or set of detectors conforms to the Standard Specifications and the CCDOTH Traffic Signal Specifications.

ii) Analyze the controller program provided by the controller manufacturer to insure that the phase and overlap designation on the traffic signal sequence drawing is provided correctly in the controller program and cabinet wiring drawings.

iii) Insure that the phase timings in the traffic signal controller are those provided by the Department.

iv) Assist in placing the traffic signal in operation by observing the signal display and checking of the conflict monitor while all vehicle traffic is stopped, and shall report any operational discrepancies or signal outages to the Signal Engineer immediately.

v) Assist the Engineer in walking all approaches of the signal installation inspecting all traffic signal items for conformance with the Departments specifications for the project and aiming of the traffic and signal heads.

vi) Assist in the testing and adjusting of emergency vehicle preemption equipment. The Contractor shall insure that any time railroad preemption is in operation with emergency vehicle preemption that the railroad preemption has priority over the emergency vehicle preemption equipment.

vii) Assist in the testing and adjusting of UPS equipment.

viii) Insure that the locations containing railroad preemption are programmed in accordance with

the approved railroad preemption program and that all special lock out devices are operating.

ix) Be responsible for inspecting each location to determine the completion of construction punch lists as directed by the Engineer. The punch lists shall be prepared and provided by the Engineer and the Contractor shall return written verification of punch list completion or non-completion.

x) Upon request, review locations proposed for loop replacement in ongoing pavement resurfacing or grinding construction contracts.

6) **Relamp Traffic Signal Sections and Clean Lens:**

Change all 135 watt and 90 watt signal lamps and wash all signal lenses including a LED once during the even contract year of this contract in April and wash video detector lenses four times a year or more often if so directed by the Engineer at specific locations. All remaining incandescent lamps shall be relamped annually. All LED signals and LED street name signs to be relamped every eight (8) years from date of installation. Refer to Article X, List of LED Locations with installation date. This work is not to be done by the five (5) patrolmen, but is to be done by a separate crew. In addition, clean the reflector and wash inside and outside of lens each time a lamp is replaced. Lenses that are damaged in any manner whatsoever must be replaced. Steam clean and wash all painted components exposed to weather in even contract year or more often if so directed by the Engineer at specific locations. Replace damaged lenses or any part of the signal system as needed or as directed by the Engineer, regardless of annual relamp schedule.

The Contractor must furnish, in writing, a schedule indicating the dates on which the above work will be done prior to the start of work. Contractor shall relamp an entire intersection on the same day. Upon completion of the relamping, lens washing and reflector washing, the Contractor shall furnish to the Engineer a completion report.

Old lamps shall be disposed of in accordance with the manufacturer recommendations and Environmental Protection Agency and requirements in Article III as stated herein.

All used LED lamps must be taken to a certified processing facility meeting Environmental Protection Agency (EPA) Standards. A receipt shall be furnished to the County showing that the lamps have been disposed of properly. The LED lamps shall be taken to Sims Recycling Solutions (630) 231-6060 or to another EPA and the County approved lamp recycling center.

All replacement lamps shall meet the following specifications:

i) 12" T.S. Section: The lamp shall be a nominal 135 watt; 1650 lumens; average rated life of not less than 16,000 hours, with a 3" light center.

ii) 8" T.S. Section & 9" Pedestrian Section: The lamp shall be a nominal 54 watt; 530 lumens; average rated life of not less than 8,000 hours, with a 3" light center.

iii) 12" Pedestrian Signal Section: The lamps shall be a nominal 90 watt; 1000 lumens; average rated life of not less than 16,000 hours, with a 3" light center.

iv) 12" Optically Programmed Section: The lamp shall be a nominal 150 watt sealed beam; average rated life of not less than 6,000 hours.

v) All other lamps shall meet the recommendations of the manufacturer and shall meet with the approval of the Engineer.

vi) All L.E.D. lamps shall be tested each year to determine the need for replacement. Aside from repair of signal outages, which is routine maintenance, L.E.D. replacement shall be routine maintenance or covered by manufacturer warranty. The replaced L.E.D. signal shall be of the same brand/manufacturer as existing except when replacing entire intersection with LED modules. The Contractor shall record for the Engineer the manufacturer name, model number, serial number and date of installation of each L.E.D. module needing repair or replacement. This shall be included in the completion report.

7) Conflict Monitor Testing Program:

The Contractor shall conduct a complete test of all conflict monitors and malfunction management units once a year by September 1. The testing method shall be pre-approved by the Engineer and shall test all the features of the monitors or units as required by the Engineer.

Unless prior approval is given by the Engineer, all testing shall be completed by the Contractor within the same working day at a single traffic signal installation. The Contractor shall provide a schedule for this work to the Engineer. Any deviation from the approved schedule shall be approved by the Engineer.

The Contractor shall provide a final completion report listing all the signal installations with the date the work was completed and verifying that each item has been completed. The Contractor will be required to provide Progress Reports at the Engineer's request showing the locations which have been completed to that date.

Conflict Monitors/ Malfunction Management Units shall not be replaced at railroad interconnected intersections without prior notification of the Traffic Signal Engineer.

8) Mast Arm Assemblies And Pole Inspection:

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 August 1 of the contract year and may be concurrent with the group relamping or done separately. The Contractor shall furnish schedules for this program a minimum of one week in advance of the start of work. The inspection requires reporting the Daily Work Schedule and follow-up documentation of the work. 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:

i) Mast Arm

ii) Mast-to Pole Connection

iii) Pole

iv) Base Plate

v) Anchor Bolts

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

The pole shall be checked for external corrosion, impact damage, perforation by rust through, and any discernible deflection, distortion or cracking. The pole shall 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 shall be checked for cracks.

The base plate shall be checked for any severe section loss or deformation. The anchor bolts of the mast arm shall be inspected to verify that the existing nuts are not loose or missing. The anchor bolts shall also be checked for any corrosion or bending.

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

The Contractor's crew must inspect the entire intersection on the same working day. The Contractor shall provide the Engineer a completed form for each Department maintained traffic signal installation with all mast arm assembly and pole inspections at that installation on a single form.

9) **Annual Railroad Interconnected Traffic Signal Inspection:**

The Illinois Commerce Commission will conduct an inspection of all Department traffic signal locations which are interconnected with railroad crossing flashing signal warning devices with or without railroad gates. Locations not maintained by the Contractor but under the County route jurisdiction System are also included. The inspection shall be completed on an annual basis during the calendar year. In addition to the Contractor an inspection team may consist of personnel from the County, the railroad responsible for the railroad crossing warning equipment, and the Illinois Commerce Commission. The Engineer will schedule the inspection of each railroad interconnected location based on the availability of personnel from each involved agency.

The Contractor shall be responsible for making all necessary measurements as directed by the Engineer. He shall determine all signal time intervals and controller settings which pertain to railroad preemption. The sequences of operation shall be checked and the Contractor shall conduct all necessary tests. Any deficiencies or recommendations shall be reported directly to the Engineer.

The Contractor shall maintain and update individual security software and proms for the railroad interconnected signals in Cook County. These items shall remain under strict security and be transferred back to the Department at the end of the Contract. The Contractor shall at all times provide and maintain one (1) Eagle/Siemens traffic signal controller and (1) Econolite traffic signal controller, at a location to be approved by the Traffic Signal Engineer, loaded with District 1 approved security software, which can be used to replace damaged equipment in the field. The controller model shall be as directed by the Engineer.

10) Uninterruptible Power Supply System Maintenance and Test:

The Contractor shall conduct a complete test of all Uninterruptible Power Supply Systems once a year by September 1. The testing method shall be pre-approved by the Engineer and shall test all the features of the monitors or units as required by the Engineer. Unless prior approval is given by the Engineer, all testing shall be completed by the Contractor within the same working day at a single traffic signal installation. The Contractor shall provide a schedule for this work to the Engineer. Any deviation from the approved schedule shall be approved by the Engineer.

Quick Check once every two (2) weeks the following items:

i) Remove any dust or dirt.

ii) Check fan for operation.

iii) Check battery cable connections.

iv) Clean battery terminals, if necessary.

v) Check AC connections.

vi) Keep UPS clean.

vii) Check for alarms.

A complete test of all Uninterruptible Power Supply Systems once a year shall include the following items:

i) Document the battery voltage of each battery under the normal operation, on inverter full load, inverter no load and power down batteries disconnected conditions.

ii) For multiple batteries, the readings will be compared to each other. Their battery voltages should be within 1/10 of a volt of each other. Under normal operation, battery voltages that vary more than 3/10 of a volt may a potentially weak battery.

iii) With the battery being discharged, if the reading is below 11.5v, this indicates a weak battery.

iv) Replace this weak battery with the same manufacturer and rating with a label indicating new installation date. If the batteries are more than three years old, replace all batteries with the same manufacturer and rating as original with a label indicating new installation date on each battery.

v) When the batteries are five years old, replace all batteries with the same manufacturer and rating as original with a label indicating new installation date on each battery and be considered routine maintenance.

Existing batteries shall be recycled meeting all applicable sections of US EPA and IL EPA publications along with the Code of Federal Regulations for transportation.

The Contractor shall provide a final completion report listing all the signal installations with the date the work was completed and verifying that each item has been completed. The Contractor will be required to provide Progress Reports at the Engineer's request showing the locations which have been completed to that date.

11) **Vehicle Detector Maintenance and Replacement:**

Maintain and replace magnetic detectors, video detectors, cameras, detector loops, micro loops, preformed detector loops, microwave detectors, wireless detectors, radar presence detectors and emergency vehicle detectors along with their related amplifiers, microprocessors, relays, diodes and power supplies damaged from any cause whatsoever. The maintenance of video detection, infrared detection and radar presence detectors shall include all necessary modifications to programmable detection zones. Microwave or fiber optic communications equipment for video and radar presence detections on both the sending and receiving end, or in between, shall be included as part of the detection.

All detector loops which become inoperable must be replaced by the Contractor. All existing detector loops shall be resealed when found with exposed wires or missing or damaged sealant or as directed by the Engineer. The cost of replacing the detector loop shall be part of Traffic Signal Routine Maintenance. Detector loops that are damaged by Department forces shall be replaced and paid through a Non-Routine Authorization letter. A detector loop which is milled out during a pavement resurfacing will be replaced as part of the Departments resurfacing contract. The Departments Electrical Maintenance Contractor will be notified by the Engineer and dispatch a patrol person to the location to disconnect the loop detector cable from its terminals and place the affected phase or phases on maximum recall. At this time the Engineer will instruct the Contractor representative as to the maximum green time that is to appear for each of the affected phases.

System Detector Loops shall be replaced throughout the entire year. Non-System Loops, at the Contractor's option, between November 30th and March 1st may be replaced by a loop, with a temporary video detector at no additional cost to the Department. The video or radar presence detector shall be installed to provide adequate detection in place of the detector loop to the satisfaction of the Engineer and it shall be removed and replaced permanently by a detector loop by March 31st. If the contractor is unable to install cable for the temporary detectors due to frozen or full conduits, with prior approval from the Engineer, the Contractor may temporarily span the cable overhead as long as proper clearances over the roadway can be maintained. No additional compensation shall be provided for detector cables or for any special installation requirements.

At locations where the Contractor deems the pavement condition to be unfit to replace an existing inoperable detector loop with a new loop due to pavement deterioration, the Contractor shall, with prior approval from the Engineer, install a preformed detector loop in place of the existing detector loop. The preformed detector loop shall be installed in accordance with the specification "Preformed Detector Loop" under Non-Routine Work. The cost of providing and installing the preformed detector loop, complete including all necessary connections, handhole drilling, trench and backfill, coilable non-metallic conduit and restoration shall be incidental to routine maintenance of the traffic signal installation and no extra payment shall be allowed.

The Contractor shall provide licensed software for each of the Patrolmen who have video detection and/or radar detection in their respective area. The Patrolmen shall be fully instructed in the operation and maintenance of each video and radar detection system. The Contractor shall provide licensed software for each of the Patrolmen which have tilt/pan/and zoom video cameras in their respective areas. The Patrolmen shall be fully instructed in the operation and maintenance of these cameras.

12) Equipment Malfunction And Repair Tracking:

Malfunction and repair of traffic signal equipment shall be recorded by the Contractor and reported monthly to the Traffic Signal Engineer in a data base on a CDROM. Information shall include date of failure, date of repair or replacement, reason for failure (lightning, water damage, etc.), equipment type, model, manufacturer, location and any other pertinent information as directed by the Traffic Signal Engineer. Equipment replacement information shall include model, manufacturer, and source (new, County stock, other location, etc.). Reports shall include monthly and accumulative totals. LED module failures/outages shall include the information noted above and include age of module, color, and display (ball, arrow, pedestrian hand/man/outline/full/count-down, etc).

13) Traffic Signal Outage And Operation Report

The Contractor shall maintain a data base that tracks traffic signal outages and operation and generates a report that provides a comprehensive list of these traffic signals locations on a daily and monthly basis. The report shall include, but not limited to:

- Traffic signal locations that are currently dark or are in flashing red mode
- Traffic signal locations that have been dark or in flashing red mode within the last 24 hour period.
- Locations identified by TS number, intersection and route, county and community
- Identify reason for dark or flashing condition with estimated time/date of restoration to normal operation.
- Corrective action taken with date and time normal operation was restored

The report shall be generated from the data base and emailed to the County. Monthly reports shall be submitted to the County on CDROM.

14) Closed-Loop Traffic Signal Monitoring System:

Maintain the County Close Loop Traffic Signal Monitoring System (CLMS) as described in detail within Item A-9. This includes monitoring and maintenance of any signals included in the future State-County or County-County Traffic Management Center (TMC). The County at no cost to the Contractor will supply any new software required for the TMC. The signals within the TMC network will be monitored as described in Item A-9. The necessary computer components (use of one or more PCs is anticipated) and one or more standard phone lines required to interface with the TMC are incidental to the CLMS. All CLMS requirements shall remain in effect for all signals transferred to this proposed system.

Monitor all closed loop systems maintained by him for the County from his main office or repair shop on a 24 hour per day, 7 days per week basis. The Contractor shall program all closed loop systems so that he will receive all system alarms, events and messages on his monitoring systems. The Contractor shall provide an electronic patrol of each master and local controller at least once each week. This is in addition to regular field patrols.

The General Foreman shall review the report and forward any discrepancies to the patrolman for repair. A log showing the date of any discrepancies and date fixed shall be done by the General Foreman. The Contractor shall prepare a closed loop system status report and log once every week and system monitoring report every two weeks which format and content required shall be approved by the Engineer and e-mail it to the Engineer and the County monitoring Consultant. This status report shall document that all equipment is working properly and the timings and programming in each system have not changed from their correct values. In addition, this electronic patrol shall include, but not be limited to, system loop checks (failed, maximum presence and no activity), local loop checks (phases on recall and locked detectors), loops with system outputs (volume and occupancy tests), master controllers answering, local intersections on line and telemetry checks. Any exceptions found shall be reported to the Engineer via facsimile and corrected within seven (7) days.
The Contractor shall maintain the integrity of the timings and programming information contained in the local and master controllers. The Contractor shall maintain his own database of all local and master controller timings, settings and programming information including graphic displays for intersections and systems. This database shall be kept by him at his place of business and **the Contractor's data base is considered the CCDOTH Master Database.** This data base shall also include County maintained Closed Loop Traffic Control Systems that are on IDOT maintained routes.

TRAFFIC SIGNAL ROUTINE MAINTENANCE PAY ITEMS

Item A -1 TRAFFIC SIGNAL INSTALLATION

Maintain all traffic signal equipment located at a traffic signal installation owned and/or maintained by the County. A traffic signal installation shall consist of all equipment controlled by one local traffic signal controller, including but not limited to the following:

1) Traffic signal heads, traffic signal posts, mast arm assemblies, poles, illuminated signs and foundations. The traffic signal heads shall consist of signal sections, backplates, louvers, visors, and special signal sections, lamps, incandescent lamps, and light emitting diodes.

2) The controller cabinet with its associated equipment, closed loop system communications equipment, uninterruptible power supply systems, switching units, intersection coordinators, time switches and, where applicable, control pedestal and foundation.

3) Pedestrian signal heads, Pedestrian countdown signal heads, pedestrian pushbutton detectors, infrared pedestrian detectors and associated signs.

4) A NEMA TS 1 or NEMA TS 2 actuated controller and cabinet. The controllers may be electrical-mechanical or solid state types with volume density features, railroad preemption, fire preemption, and time base coordination. The railroad preemption, fire preemption, and time base coordination may be internal, a module or external to the controller.

5) Emergency vehicle preemption equipment and intersection monitoring devices, where applicable, shall be maintained. The cost of repairing or replacing the emergency vehicle preemption equipment shall be invoiced, by the Contractor, directly to the local agency, as instructed by the Engineer.

6) Red Light Running Enforcement equipment and connections within the traffic signal cabinet shall be maintained where applicable. The cost of maintaining or repairing Red Light Enforcement equipment shall be invoiced, by the Contractor, directly to the local agency, as instructed by the Engineer. For Cook County Red Light Running Enforcement maintaining and repairing connection shall be considered routine.

7) Magnetic detectors, video detectors, cameras, detector loops, micro loops, preformed detector loops, microwave detectors, wireless detectors, radar presence detectors, cameras with pan-tilt-zoom (PTZ) and emergency vehicle detectors, along with their related amplifiers, microprocessors, relays and diodes. The maintenance of video detection or radar presence detection shall include all necessary modifications to programmable detection zones. Microwave and wireless communication for detection including transmitters, receivers, antennas, reflectors and all other communication equipment either on the sending end, receiving end, or in between shall be included as part of the detection. The cost of repairing or replacing the emergency vehicle light detectors shall be invoiced, by the Contractor, directly to the local agency, as instructed by the Engineer.

8) Illuminated regulatory and Street Name sign systems. The illumination shall be accomplished by incandescent lamps, fluorescent lamps, neon tubes, light emitting diodes or fiber optic lights.

9) Electrical and telephone service installations.

10) Railroad interconnected traffic signal equipment, conduit, wiring, and security Systems.

11) Traffic signal cable and interconnect cable including copper wires and fiber optic cables.

12) Traffic signal wireless interconnect systems.

13) Signal heads and conduits attached to railroad cantilever or truss structures.

14) Grounding systems complete with ground rods, ground wells, and grounding cables.

15) Traffic signal conduits and interconnect conduits. The conduits may be in the ground or attached to structures.

16) Traffic signal handholes and interconnect handholes.

17) All combination poles with luminaire mast arms including the luminaire(s), lighting mast(s), combination pole lighting controls and cabling.

18) Uninterruptible Power Supply (UPS).

19) Traffic 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, transceivers, network switches, interface boards for copper and fiber optic type

interconnect cables, noise suppressers and associated components for coordinated traffic signal systems.

Check and adjust daylight saving time on each master and local controller.

Other maintenance items to be performed by the Contractor as included under this Pay Item include:

a) Maintain the CCDOTH inventory of Traffic signal equipment on Microsoft Access Software.

b) Maintain a library of repair and operation manuals for equipment in the CCDOTH signal inventory.

c) Purchase and maintain up to date licensed software to operate and maintain all Closed Loop Traffic-Signal Systems, Video and Detection Systems, and related management systems.

d) Purchase and maintain repair and testing equipment necessary to meet the response or repair time requirements of the Contract. Calibration of test equipments shall be completed in accordance with manufacturer recommendations.

e) Provide technical assistance at traffic signal inspections and maintenance transfers.

f) Provide two week inspections of the traffic signal system through Contractor provided staff of IMSA level II technicians.

g) Replace all incandescent lamps as stated in Article IV, section A, "Relamp Traffic Signal Sections and Clean Lens". All LED signals, LED illuminated signs and all LED street name signs to be relamped every eight (8) years from date of installation.

h) Inspect all mast arm poles yearly and provide report on damage poles.

i) Inspect conflict monitors every year.

j) Inspect all railroad interconnected signals on the County highway System (even those maintained by others) on a yearly basis. (This inspection shall be coordinated with members of the Illinois Commerce Commission (ICC) and the associated railroad companies.)

k) Replace all batteries in local and master controllers, time clocks and coordination units yearly. Place a sticker on the unit showing the date when the battery was replaced.

l) If the batteries for Uninterruptible Power Supply Systems are more than five years old, replace all batteries with the same manufacturer and rating as original with a label indicating new installation date on each battery.

Item A -2 TEMPORARY TRAFFIC SIGNAL INSTALLATION

Maintain a temporary traffic signal installation, complete. The installation shall consist of all equipment controlled by one local traffic signal controller including signal heads, two (2) or more per approach and

any number of signal sections, wood poles with down guys, span wire cable, span wire accessories, tether wires, electric cables, and service installation. Pedestrian signal heads and detectors, vehicle detectors and all other items listed under A-1 (Traffic Signal Installation), including system equipment, shall be included in this Item where applicable.

Item A -3 FLASHING BEACON INSTALLATION – OVERHEAD

Maintain a signal head, flashing beacon, overhead mounted, flasher controller in a housing and where applicable, the complete span wire installation. The signal head shall consist of one (1) or more faces with any number of signal 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, conduit, handholes, ground rods and service installation.

Item A -4 FLASHING BEACON INSTALLATION - POST MOUNTED

Maintain a signal head, flashing beacon low mount, flasher controller in a housing, service installation, conduit, handholes, ground rods, where applicable a time clock, traffic signal post and foundation. The signal head may consist of one (1) or more signal sections mounted on the same object.

1) If the flashing beacon has a galvanized post that is knocked down, the Contractor will reset the galvanized steel flasher post, signal head and any other equipment attached to the post.
2) Time clock shall be checked.
3) Coordinate with school throughout the school year to adjust flashing schedule accordingly.

Item A -5 SOLAR FLASHING BEACON INSTALLATION - POST MOUNTED

Maintain a signal head, flashing beacon low mount, flasher controller in a housing, conduit, handholes, ground rods, where applicable a time clock, where applicable a solar powered system (with batteries, electronic components, solar panels, etc.), traffic signal post and foundation. The signal head may consist of one (1) or more signal sections mounted on the same object.

1) The batteries shall be replaced at 75 percent of there life expectancy. When the batteries are replaced. The Contractor shall bill the private entity that paid for the installation (school district) directly or as directed by the Engineer, if batteries are less than five years old.
2) If the flasher controller, charging system, or solar cell develop problems, the Contractor shall repair them and bill the private entity that paid for the installation (school district) directly or as directed by the Engineer.
3) All batteries are to be tested under load yearly with a report of the results faxed to the Engineer.

4) If the flashing beacon has a galvanized post that is knocked down, the Contractor will reset the galvanized steel flasher post, signal head and any other equipment attached to the post.
5) The batteries shall be included under this pay item and replaced every 5 years.
6) Coordinate with school throughout the school year to adjust flashing schedule accordingly.
7) Time clock shall be checked.

Item A -6 RECTANGULAR RAPID FLASHING BEACONS

Maintain a signal head, flashing beacon low mount, flasher controller in a housing, conduit, handholes, ground rods, pedestrian pushbutton detectors and associated signs, solar powered system (with batteries, electronic components, solar panels, etc.), traffic signal post and foundation. The signal head may consist of one (1) or more signal sections mounted on the same object.

1) The batteries shall be replaced at 75 percent of there life expectancy. When the batteries are replaced. The Contractor shall bill the Village that paid for the installation directly or as directed by the Engineer, if batteries are less than five years old.
2) If the flasher controller, charging system, heads, pushbutton or solar cell develop problems, the Contractor shall repair or replace them and bill the Village that paid for the installation directly or as directed by the Engineer.
3) All batteries are to be tested under load yearly with a report of the results faxed to the Engineer.
4) If the flashing beacon post is knocked down, the Contractor will reset the flasher post, signal head and any other equipment attached to the post. If the flasher controller, charging system, heads, pushbutton or solar cell are damaged due to knocked down, the Contractor shall repair or replace them and bill the Village that paid for the installation directly or as directed by the Engineer.
5) The batteries shall be included under this pay item and replaced every 5 years and bill the Village entity that paid for the installation directly or as directed by the Engineer.

Item A -7 SPEED RADAR SIGN INSTALLATION

Maintain a LED speed radar sign installation, local controller including LED speed sign, wire accessories, conduit, electric cables, and service installation, where applicable a solar powered system (with batteries, electronic components, solar panels, etc.). If the speed radar sign installation has a galvanized post that is knocked down, the Contractor will reset the galvanized post, speed radar sign installation and any other equipment attached to the post. Coordinate with school throughout the school year to adjust schedule accordingly. Time clock shall be checked. Clean sign face four times a year.

Item A -8 ADVANCED RAILROAD WARNING SYSTEM

Maintain an Advanced Railroad Warning System, complete. The system consists of all equipment controlled by one local traffic signal controller including illuminate sign, video detectors, light poles, posts, electric cables, conduits, handholes, ground rods, foundations and service installation. Verify and redefine

detector zones every two weeks. Clean video detectors a minimum of four times a year, adjust camera as required and maintain detectors and controller as stated in Item A-1.

Item A-9 CLOSED LOOP SYSTEM MONITORING

Maintain the CCDOTH central display monitors and all computers used for field and office use and monitor the closed loop systems as described below:

1) The Contractor will, on a daily basis, monitor, review, and maintain the CCDOTH closed loop monitoring system. The Contractor shall use a computer system with licensed software for each brand of master controller (used in Cook County) to monitor the Cook County closed loop signal system. The Contractor shall provide weekly reports updating the status of the Closed Loop Monitoring System. The Contractor shall also provide licensed master software for all patrolmen laptop computers.

   A copy of the Official CCDOTH Closed Loop Data Base electronic files shall be supplied to the Engineer at the Termination of this contract the data base shall also be digitally transferred to the next Maintenance Contractor at the termination of this contract.

2) The Contractor shall concurrently monitor all Closed Loop Traffic Control Systems maintained by him under this contract on a 24 hour per day, 7 days per week basis. The Contractors system monitoring functions shall include, but not be limited to, the reception of telephone calls from Closed Loop System Master Controllers and the storing, displaying, and acting upon any reported events, alarms, equipment failures, operational exceptions and programmed data collection. The Contractor shall have sufficient dedicated telephone lines, his own dedicated Close Loop Monitoring System(s) with appropriate software, and qualified electrical technicians to provide for the simultaneous monitoring of all closed-loop traffic control systems being maintained by him under this Contract.

3) The Contractor shall program all Closed Loop Systems, so that he will receive all system alarms, events, and messages on his Central Closed Loop Monitoring System(s). The Contractor shall respond to all alarms, events, and messages and provide the indicated response or corrective action within the appropriate time frame. The Contractors 24-hour Dispatch Center shall be equipped with the necessary equipment to receive all alarms, events, and messages as described above. Before the end of the first month of the contract, the Contractor shall submit a list of alarms, events, or messages that each brand of Closed-Loop System is programmed to send to the Contractors dispatch center for approval by the Engineer.

4) The Contractor shall maintain the integrity of the timings and programming information contained in the local controllers and the master controllers. The Contractor shall maintain each Closed Loop Traffic Control System in the mode for which it has been setup and programmed (i.e., Traffic Responsive (TRP), Time-of-Day (TODD), FREE, etc.). The Contractor shall maintain his own data base of all the local and master controller timings, settings and programming information including graphic displays for intersections and systems. This data base shall be kept by him, at his place of business, for his own use in the normal course of system maintenance. The Contractor's data base shall be the Official Cook County Closed Loop Data Base. This data base shall also include State and Municipal maintained Closed Loop Traffic Control Systems that are on Cook County maintained routes or

connect into Cook County systems or Lake County system. The Contractor shall insure data base agreement by synchronizing the CCDOTH data base in Downtown Chicago office and the County monitoring Consultant with the Official Data Base kept by the Contractor. Monthly conference calls between the Contractor, the Engineer and the County monitoring Consultant are required.

5) The Contractor shall provide an Electronic Patrol of each master controller and its local controllers at least once every week. This Electronic Patrol shall be done in addition to any field patrols done as part of Routine Maintenance. The Electronic Patrol shall document that all equipment is working properly and the timings and programming in each system have not changed from their correct values.

6) In addition, this electronic patrol shall include, but not be limited to, system loop checks (failed, maximum presence, and 'no activity), local loop checks (phases on. recall, locked detectors), loops with system outputs (volume/occupancy checks), failed, Max presence, no activity, master controllers answering, local intersections on line (telemetry checks). The General Foreman shall review the report and forward any discrepancies to the patrolman for repair. A log showing the date of any discrepancies and date fixed shall be done by the General Foreman. The Contractor shall prepare a closed loop system status report and log once every week and system monitoring report every week which format and content required shall be approved by the Engineer and e-mail it to the Engineer and the CCDOTH monitoring Consultant. This status report shall document that all equipment is working properly and the timings and programming in each system have not changed from their correct values.

7) All changes to Local or Master Controller programming shall have prior approval of the Engineer. Minor temporary changes to alleviate some sporadic operational anomaly will be acceptable provided it is done by a qualified electrical technician, and reported to the Engineer as soon as practical. It is anticipated that major re-programming will only be brought about through a comprehensive traffic study, optimization of timing effort independent of the routine maintenance portion of this maintenance contract. However, the Contractor may be required to effect (program) such timing changes in the closed-loop system masters and/or local controllers. The Contractor shall keep records of all changes to local and master controller data bases with the dates the changes were implemented and who authorized the changes.

8) The Contractor shall maintain a Closed-Loop System Operational Log accumulating in it the day to day operational information for all Closed Loop Traffic Control Systems. This log shall contain a listing of all program and mode changes that have occurred in each system and any anomalies to normal operation. The Contractor shall monitor this log for any persistent and recurring deviation from normal system operating modes and he shall report them to the Engineer as soon as is practical. In particular, repeated cycle failures, loss of coordination, excessive pre-emption or conditions that dictate manually commanded free operation shall be reported. In addition, the Contractor shall verify (at least once a week) that program changes in traffic responsive Closed Loop Systems are occurring at normal times. This will insure that these systems are not oscillating between programs. This check will be considered part of the operational log. The operational log shall be maintained by the Contractor for the duration of this contract. The last 6 months of this log shall be available for inspection at any time and copies shall be provided the Engineer upon request the format content, and method used to keep the Operational Log shall be approved by the Engineer.

9) The Contractor shall maintain a Closed-loop System Failure Log for all Closed Loop system alarms, events, anomalies, and reported failures. It shall further contain the date, time of occurrence, the corrective action taken, a notation as to the cause, and a record thereon as to the repair time required to correct the malfunction. The System Failure Log shall be maintained by the Contractor for the duration of this contract. The last 6 months of this log shall be available at any time for inspection by the Engineer and copies shall be provided to the Engineer upon request.

10) The Contractor shall prepare a System Monitoring Report every week. Copies of the System Monitoring Report shall be forwarded to the Engineer and the County Monitoring Consultant every week. The System Monitoring Report shall describe the status of each closed loop system being maintained by the Contractor under this Contract and a summary of failures and alarms occurring within each system during the week reporting period. This report shall summarize the information contained in the Closed-loop Operations Log and the Closed Loop Failures Log. The System Monitoring Report shall in addition highlight any equipment failures that were not attended to, repaired or brought back into operation within the required time frame specified in the Repair Time Table and the reason for failing to meet the specified response/repair time schedule. The report format shall be approved by the Engineer.

11) The Contractor shall not make any timing or programming changes on any Closed Loop Systems or its components except through qualified electrical technicians.

12) The Contractor will reassign system detectors in an existing Closed Loop System as directed by the Engineer. This may include rewiring system detectors to different inputs into the local controller, installing diodes to provide a second channel of detector output to use an existing local detector as actual system/local detector, changing system detector assignments, wiring system detectors directly to a master controller or rewiring system detectors to different inputs in the master controller. Any additional amplifiers or dual output amplifiers that are necessary will be paid separately, otherwise all remaining materials and labor required to complete this work shall be incidental to this item.

13) Where applicable, to insure proper system operation and alarm reporting should the master controller ever go into backup, the Contractor shall maintain a location specific backup program in the backup PROMS of each Master Controller. The backup program in PROM shall duplicate the normal controllers programming as closely as possible. The Contractor shall be responsible for maintaining the backup programming and incorporating appropriate changes whenever normal programming changes are made at a Master or when directed to do so by the Engineer. Should a Master Controller ever need to be removed or replaced, the Contractor shall make the appropriate backup PROM switches with the replacement controller.

14) The Contractor shall maintain a location specific hard copy printout of the timings and programming information in the cabinet at each Local Controller and Master Controller. Each copy shall be indelibly marked with the date that the timings and programming data therein was printed and verified to be correct by the Contractor. The hard copy printouts shall be periodically updated by the Contractor such that no one particular hard copy printout is more than four (4) months old.

15) One month prior to the contract start date, the Contractor shall supply to the Engineer for approval, his proposal for the Closed Loop Monitoring System to be located at his place of business. The proposal

shall include a detailed description of the proposed Closed Loop Monitoring System and a timetable for the installation of the system and components.

16) The Contractor shall assist the Engineer in changing modem baud rates.

17) Each even contract year, the Contractor shall also purchase one notebook field monitor computer which shall become property of the CCDOTH. This will replace an existing CCDOTH notebook monitor computer which will become the property of the Contractor. The Contractor shall be responsible for transferring all of the existing files and programs on the existing CCDOTH notebook monitor computer to the one provided by the Contractor. This includes all the standard pre-installed software plus Norton System Works(any costs associated with keeping Norton System Utility Completely active), Lotus SmartSuite Professional edition, Microsoft Office Professional (Latest edition of each), Aries (Latest edition),and SYNCHRO version 7.0 (Latest edition). Prior to purchasing this notebook computer, the Contractor shall contact the Engineer to ensure that the following make, model, and options are still valid and meet the requirements of this specification: HP Compaq 8740w with 2.8 Ghz, Core i7 Processor (including notebook bag), 4 GB RAM, 320 GB hard drive, 17" WSXGA+, DVD+-RW Drive, 6 USB ports, Windows 7 professional Edition Operating System, internal modem, Econolite external modem extra high capacity battery, Built in Broadband Access including monthly service, Mobility auto adapter, connection cables between notebook and Econolite or Eagle controllers with label on each cable.

The Contractor shall also provide a service agreement from the Marc NX and Aries software vendors to address any operational issues with these software products. The service agreement shall allow the Engineer to call for either telephone or in person support visits as required to maintain the operation of the monitoring systems to the satisfaction of the Engineer. This service shall be for the life of the product and at no additional cost and shall be part of the cost of the software. The agreement stating the above shall be furnished to the County.

All of the above hardware and software are to be installed and tested before it is delivered and must be operational to the satisfaction of the Engineer before the end of January. Thereafter the Contractor will pay a penalty of two hundred and fifty (250) dollars a day for the duration of the Contract or until all hardware and software is complete and accepted by the Engineer.

18) The Contractor shall maintain the county monitoring systems which consist of: a local area network system (LAN), various laptops and deck top computers, video monitoring system, printers, additional equipment added during the Contract, and all peripheral equipment belonging to the above units. All costs to maintain daily communication between the Contractor's LAN and the County's LAN and all monitoring hardware and software will be included under routine maintenance.

19) The Contractor shall assist consultants who are preparing Signal Coordination and Timing (SCAT) reports for the Department. This assistance shall be limited to a one-time download by the consultant of system timings with a qualified Contractor representative at the system location at the time of the download. The Contractor shall assist consultants in changing controller addresses, if the change is approved by the County. Occasional operational questions by the consultants may also need to be answered by the Contractor as well as any required correction of items related to the maintenance of systems. In instances beyond these such as multiple requests for assistance in downloading system

timing, programming errors which result in Contractor maintenance intervention, or multiple requests for assistance in programming, the Contractor will be allowed to bill the consultant. An itemized bill, including the date and system number, as well as the reason for the bill shall be submitted to the Engineer in conjunction with the actual bill being sent to the consultant.

TRAFFIC SIGNAL REGULAR WORK PAY ITEMS

Item AX PAINT TRAFFIC SIGNAL INSTALLATIONS

Under this item, for unit price per intersection as shown in the Schedule of Prices, and as directed by the Engineer in writing, the Contractor shall paint all exposed surfaces of the various components of a traffic signal installation, temporary traffic signal installation, traffic signal controller cabinet and flashing beacon installation and shall conform to Article 851 of the Standard Specifications.

In addition to the requirements listed above under PAINTING, the date of painting shall be stenciled in one inch numerals at a point near the base of the controller cabinet or as otherwise directed by the Engineer and as listed in Article III Section11.

Item AX-1 PAINT TRAFFIC SIGNAL INSTALLATION

Item AX-2 PAINT FLASHING BEACON INSTALLATION

Item AX-3 PAINT TEMPORARY TRAFFIC SIGNAL INSTALLATION

Item AX-4 PAINT TRAFFIC SIGNAL CONTROLLER CABINET

Item AY TEMPORARY TRAFFIC SIGNAL INSTALLATION:

Under this item, for a unit price per installation, as shown in the Schedule of Prices, and when directed by the Engineer in writing, the Contractor shall either install or remove a temporary traffic signal installation.

Item AY-1 TEMPORARY TRAFFIC SIGNAL INSTALLATION TYPE - 1:

- Plans for the temporary traffic signal installation shall be prepared by the Cook County Department of Transporation and Highways.
- Cook County Department of Transporation and Highways traffic signal equipment shall be utilized. All cable, wire, anchoring materials, mounting brackets and service installation shall be furnished by the Contractor.

The installation of the temporary traffic signal installation shall include the Contractor contacting Commonwealth Edison Company for a service location and furnishing and installing a service installation.

Item AY-2 TEMPORARY TRAFFIC SIGNAL INSTALLATION TYPE - 2:

- Plans for the temporary traffic signal installation shall be prepared by the Cook County Department of Transportation and Highways.
- The Contractor shall furnish and install a complete temporary traffic signal installation which when completed and accepted shall become the Property of Cook County. Minimum size of cabinet shall be Type IV aluminum, and controller furnished shall be suitable for eight (8) phase operation, even if fewer phases are being used. The Control cabinet shall be wired and furnished with a sixteen (16) position load bay. The Controller and cabinet to be NEMA TS2 Type 1 and meet all requirements of itemsAZ-2 and AZ-3.
- The installation of the temporary traffic signal installation shall include the Contractor contacting Commonwealth Edison Company for a service location and furnishing and installing a service installation

Item AY-3 REMOVE TEMPORARY TRAFFIC SIGNAL INSTALLATION

That portion of a temporary traffic signal installation that is the property of Cook County shall be delivered to the County and listed on the spare parts inventory. This shall include poles, traffic signal and pedestrian heads along with all mounting hardware and all control equipment. All wire, cable, anchoring devices, and service shall become the property of the Contractor.

ITEM AZ - REPLACEMENT AND/OR INSTALLATION OF TRAFFIC SIGNAL EQUIPMENT

Under this item, for unit price per installation as shown in the Schedule of Prices and when directed by the Engineer, shall furnish all materials, equipment, and labor to perform the work as specified. All materials of work not expressly specified but necessary for the proper completion in a neat, workmanlike manner shall be considered incidental and shall be included under the unit bid price and shall use the following Standards: **805001-01, 814001-02, 814006-02, 857001-01, 857006-01, 862001-01, 873001-02, 876001-02, 877001-05, 877002-02, 877006-04, 877011-05, 877012-02, 878001-09, 880001-01, 880006-01, 886001-01, 886006-01, County Traffic Signal Work Special Provisions, Standard Specifications for Road and Bridge Construction** and IDOT District One STANDARD TRAFFIC SIGNAL DESIGN DETAILS or latest revision of each **except as stated in each following pay items.**

Item AZ - 1 FULL ACTUATED CONTROLLER, IN TYPE III CABINET

Item AZ - 2 FULL ACTUATED CONTROLLER, IN TYPE IV CABINET

Item AZ - 3 FULL ACTUATED CONTROLLER, IN TYPE V CABINET

Item AZ - 4 FULL ACTUATED CONTROLLER, IN TYPE IV CABINET - RAILROAD

Item AZ - 5 FULL ACTUATED CONTROLLER, IN EXISTING CABINET

Item AZ - 6 FLASHER CONTROLLER WITHOUT CABINET, SOLID STATE - NEMA

Item AZ - 7 TRAFFIC SIGNAL CABINET LOAD SWITCH

Item AZ - 8 INDUCTIVE LOOP DETECTOR

The furnishing and installation of a Traffic Actuated Controller and an Inductive Loop Detector shall meet the requirements of Section 857 and 885 of the Standard Specifications, and the Cook County Special Provisions except as revised with this Special Provision.

Equipment shall be NEMA TS 2 TYPE I Econolite ASC/2S-1000, ASC/3, Eagle/Siemens M41, or M50 Series Controller unit unless otherwise approved by the Engineer. At the time this item is authorized, the Engineer may indicate what brand of equipment is to be supplied for that authorization. Removal of the existing controller and related items, if required, shall be considered incidental to this item. The Contractor shall deliver the existing equipment to the County Stock per the requirements of this Contract.

When installing the new controller into an existing system, the new controller shall contain all necessary telemetry modules, modems, circuit panels and wiring harnesses. All items necessary to enable the new controller to communicate/operate within an existing closed loop system shall be incidental to this pay item.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing the inductive loop detector complete with all harnesses and connections for proper operation, and/or for furnishing and installing the controller complete, including conflict monitor, load switches, flashers, flash transfer relays, etc. in a new cabinet or an existing cabinet as specified, with the necessary connections for proper operation.

Item AZ - 9 CABINET FOR EXISTING TRAFFIC SIGNAL CONTROLLER, TYPE III

Item AZ -10 CABINET FOR EXISTING TRAFFIC SIGNAL CONTROLLER, TYPE IV

Item AZ -11 CABINET FOR EXISTING TRAFFIC SIGNAL CONTROLLER, TYPE V

Item AZ -12 INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER CABINET

Item AZ -13 INSTALL EXISTING TRAFFIC SIGNAL CONTROLLER

The furnishing and/or installation of a Traffic Signal Controller Cabinet and installation of an existing traffic signal controller shall meet the requirements of Section 857 and 863 of the Standard Specifications and the Cook County Special Provisions except as follows:

Included in the above pay items are the replacement and/or addition of controller harnesses, conflict monitor harnesses, and detector harnesses as required to install the existing controller and/or cabinet at a location directed by the Engineer. New cabinets shall be furnished with panel, terminal facilities, conflict monitor, load switches, and flasher relays complete with necessary connections for proper operations. The Contractor shall provide five (5) copies (11" x 17") of the cabinet wiring diagrams for the new cabinet location. Cable logs must be furnished indicating the number of each cable, the field termination point, and all cables must be tagged with an I.D. number corresponding with the cable log. As incidental to this pay item, the Contractor shall transport the proposed equipment to the intersection and transport the existing equipment to County Stock.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and/or installing the controller and/or controller cabinet complete with the necessary connections for proper operation.

ITEM AZ-14 MODIFY EXISTING TRAFFIC SIGNAL CONTROLLER, PER PHASE

This item shall conform to Section 895 of the Standard Specifications and the Cook County Special Provisions except as follows:

This pay item shall consist of modifying an existing traffic signal controller, cabinet and all necessary associated components to add a phase, phase overlap, or pedestrian movement to the existing traffic signal. This item shall also include furnishing a new load switch, cabinet wiring, UPS wiring reprogramming the controller, and any other necessary components to complete the modification at a location as directed by the Engineer.

This work will be paid for at the contract unit price **EACH**, per phase which price shall be payment in full for modifying the controller and cabinet complete with the necessary connections for proper operation.

Item AZ-15 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/firmware license 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 incidental to this item.

This work will be paid for at the contract unit price **EACH** for UPDATED PROM SET AT EXISTING LOCAL OR MASTER CONTROLLER, which price shall be payment in full for all work as described herein and as directed by the Engineer.

Item AZ -16 MASTER CONTROLLER

The installation consist of a master controller shall meet Section 860 of the Specifications and the Cook County Special Provisions except as revised with this Special Provision.

The Manufacturer of the Master Controller shall be as approved by the Agency that will maintain the closed loop system. Cook County currently approves only Econolite or Seimens/Eagle NEMA TS2 type 1 closed loop systems. If some other agency will be maintaining the closed loop system the Contractor will contact that agency to determine what brand of equipment is acceptable.

The master controller may be installed in an existing controller cabinet replacing an existing master controller, of the same or different manufacturer, or at a new location. In all cases the Contractor shall

furnish all necessary harnesses, relays, modems, transceivers, and telephone jack to place the proposed master controller in operation. Locations where the master controller is installed within an existing system, without the local traffic signal controllers being replaced, shall be of the same brand as the local controllers. At the time this item is authorized, the Engineer will indicate which manufacturer's equipment is to be supplied for that authorization.

At the completion of installing the proposed master controller the Contractor shall, if applicable, remove the existing master controller, harnesses, relays, modems, and transceivers that are not used and deliver them to County Stock per the requirements of this 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:

- The Cabinet shall be provided with an outdoor network interface for termination of 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 56K 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 CCDOTH Design Engineer at (312) 603-1730 to request a phone hook-up.
- A follow-up fax transmittal to the CCDOTH Design Engineer at (312) 603-9956 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. 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); 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 phone line installation will then be requested from the County Central Services Office.
- The usual time frame for the activation of the phone line is 8 weeks after the CCDOTH Design Engineer 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 until a point in time that is 8 weeks prior to the anticipated completion of the traffic signal work. The contractor shall provide the CCDOTH Design Engineer with an expected installation date considering the 6-8 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 CCDOTH Central Services Office (i.e., this will be a CCDOTH phone number not a Contractor phone number).

This work shall be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing the MASTER CONTROLLER complete with necessary connections for proper operation.

Item AZ -17 SYSTEM PROGRAMMING

This item shall consist of the Contractor working with a County approved SCAT consultant, who has previous experience in optimizing closed loop traffic signal systems for the Cook County Department of Transportation and Highways, to develop a time of day and/or traffic responsive program for a time base and/or Closed Loop Signal system. All traffic counts, programming and field time needed to implement a complete working system is included in this pay item. This work shall conform to the CCDOTH Special Provision for Re-optimize Traffic Signal System Level II. The Engineer shall approve the consultant being used.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for counting, developing and implementing the timing program on a per intersection basis.

Item AZ -18 CONTROLLER DATA CONVERSION

This item shall consist of the Contractor converting the current controller/master data base to a NTCIP version and verifying all data has been transferred properly. All additional cabling and interface components shall be included to make a complete operating intersection.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for controller data conversion at an existing controller/master and all work as descried herein and as directed by the Engineer.

Item AZ -19 TRANSCEIVER

Item AZ -20 TRANSCEIVER, FIBER OPTIC

The furnishing and installation of a transceiver shall meet Section 859 and 864 of the Standard Specifications and the Cook County Special Provisions.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing the transceiver or the fiber optic transceiver and making all electrical connections.

Item AZ -21 DIGITAL TIME SWITCH

This item shall conform to Section 861 of the Standard Specifications.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing the digital time switch complete in place.

Item AZ -22 CONFLICT MONITOR

This item shall conform to Section 857 of the Standard Specifications and the Cook County Special Provisions. The conflict monitor shall be **a sixteen (16)** channel model. This item includes all labor and harnesses required to install an EDI Model SSM-12LE or MMU-16 NEMA type conflict/voltage monitor with event logging or an approved equal in an existing traffic signal controller cabinet as directed by the Signal Engineer. Remove all existing conflict monitor/ MMU harnesses not reused and the existing conflict monitor/ MMU from the cabinet and deliver them to the County stock storage location.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing the CONFLICT MONITOR complete in place.

Item AZ-23 POLICE DOOR MANUAL CONTROL

This item shall conform to Section 857 of the Standard Specifications. A push button switch with plug in socket shall be wired into the police door to advance the phasing of the controller. This item shall include all parts, labor and wiring to install this device. If requested by the Engineer this work shall include police instructions and training how to properly use the device.

This work shall be paid for at the contract unit price **EACH** for POLICE DOOR MANUAL CONTROL as described above, which price shall be payment in full for a working manual control as described-here in and as directed by the Engineer.

Item AZ-24 LIGHT DETECTOR AMPLIFIER

Item AZ-25 LIGHT DETECTOR

Item AZ-26 CONFIRMATION BEACON SYSTEM, LED

Item AZ-27 RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT

Item AZ-28 RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT

Item AZ-29 LIGHT TRANSMITTER

Item AZ-30 ELECTRIC CABLE IN CONDUIT, NO. 20 3C, TWISTED AND SHIELDED

The installation of an Emergency Vehicle Priority System shall meet Section 887 of the Standard Specifications, and the Cook County Special Provisions, except as revised with this Special Provision.

When relocating an existing unit, the emergency vehicle system is not to be inoperative for more than 48 hours and the Contractor must notify the Municipality or Fire Protection District 72 hours prior to the disconnect of the equipment.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing or relocating the emergency vehicle equipment and making all electrical connections.

The cable will be paid for at the contract unit price per **FOOT** which price shall be payment in full for furnishing and installing the cable and making all electrical connections. The electric cable shall be shielded and have three (3) stranded conductors colored blue, orange, and yellow with a stranded tinned copper drain wire. The cable shall meet the requirements of the manufacturer of the Emergency Vehicle Priority System Equipment.

Item AZ-31 VIDEO DETECTION SYSTEM, COMPLETE INTERSECTION

Item AZ-32 VIDEO DETECTION SYSTEM (SINGLE CAMERA/PROCESSOR)

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 AutoscopeTerra or approved equal video vehicle detection system including all necessary hardware, software, cable and accessories necessary to complete the installation in accordance with the manufacturer's specifications and the Cook County Special Provisions except as follows:

The vision/camera sensors shall be installed on an existing traffic signal mast arm pole, luminaire arm or other structure. Pole extensions or other video sensing equipment mounting devises and hardware as directed by the Engineer 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.

To protect the video detection cameras from electrical surges, the video detection chassis shall be connected to the cabinet ground rod with a #10 1/C green wire.

The supplier of the video detection system shall supervise the installation and testing of the video detection system. A factory certified representative from the supplier shall be on-site during installation.

The video detection system shall be warranted by its supplier for a minimum of two (2) years with ongoing software support by the supplier and no-cost video sensor and supervisor software.

This work shall be paid at the contract unit price EACH for video detection system, complete intersection or video detection system (single camera/processor), which price shall include the Machine Vision Processor/Image Sensor, Mini Hub, Video Monitor, Phone Modem, Cabling and all necessary hardware and accessories complete, required for a proper operation of the Video Detection System. No additional compensation shall be allowed for cable to the Image Sensor.

Item AZ-33 DETECTOR LOOP, TYPE I

Item AZ-34 DETECTOR LOOP, PRE-FORMED

This work shall consist of furnishing and installing Detector Loop in accordance with the requirements of Section 886 of the Standard Specifications and the Cook County Special Provisions.

This work will be paid for at the contract unit price per **FOOT** which price shall be payment in full and for furnishing, installing and testing the Detector Loop complete in place. Type I detector loop shall be measured along the sawed slot in the pavement containing the loop and lead-in, rather than the actual length of the wire. The preformed loop shall be measured from the center of the detector handhole or the center of a wood pole on temporary traffic signals to the loop dive in a straight line plus the distance along - the saw cut which contains the actual preformed loop. The lead-in wire, including all necessary connections for proper operations, from the edge of pavement to the handhole, shall be incidental to the price of the detector loop. coilable non-metallic conduit, trench and backfill, and drilling of pavement or handholes shall be incidental to detector loop quantities.

Item AZ- 35 WIRELESS DETECTION SYSTEM, COMPLETE INTERSECTION

Description.

This specification sets forth the minimum requirements for a wireless vehicle detection system that uses pavement-mounted magnetic sensors to detect the presence and movement of vehicles. This work shall consist of furnishing and installing a Sensys or approved equal wireless vehicle detection system including all necessary hardware, cable and accessories as shown on the plans and required to provide a fully operational system.

The system shall consist of a minimum of thirty (30) flush mounting pavement detector sensors, two (2) access points, two (2) repeaters and associated contact closure cards. The system shall be able to detect either approaching or receding vehicles in multiple traffic lanes. Extension poles for mounting wireless access points and repeaters shall meet the requirements of Standard Specification section 830 and be included in this item.

General:

The Detector Sensing System shall deploy a design that supports a minimum of eight sensor units being controlled by a radio repeater and a design that incorporates repeaters and a single receiver that supports a cumulative sum of eighty (80) separate detector sensors concurrently at any traffic signalized intersection. The design shall structure data transmissions in a manner as to be non-interfering with other sensors installed. This design shall include a noninterference technique that allows radio link from the detector sensor to the repeater/receiver and a radio link from each repeater to the receiver base at the traffic controller. Repeater devices shall deploy a battery operation or be provided with a battery with solar recharging installation. Batteries shall be rated for a minimum of two (2) years. Each repeater device or receiver device shall be capable of receiving up to eight (8) embedded detector sensors at a range of up to 150 feet from the repeater to the embedded detector sensor.

Epoxy fill for the roadway based on the pavement surface where the detectors are being installed with appropriate temperature ratings shall be applied.

Detector cards for traffic control detector rack positions shall be furnished. Each detector card shall be a four channel device and be capable of providing detector ground true input to the traffic controller as well as linking the detector data to a remote Ethernet port for remote monitoring, concurrently. Traffic controller detector sensor card units shall be compatible with TS-1 terminal facility terminations, unless otherwise specified on the Plans. The detector cards and Expansion Modules shall provide one detector input to the traffic controller for each detector sensor installed. Modification to the existing detector racks to accommodate the new detector may be necessary. Repeater sites are required for all embedded sensors installed in excess of 150 feet from a receiver or repeater. An additional repeater for any repeater is required for distances greater than 900 feet from a repeater or receiver and/or does not provide sufficient radio propagation to properly support a radio link – repeater to repeater or repeater to receiver, which could occur with non-line of sight locations.

A factory representative is required at turn-on to support the radio installations and to implement the radio and device programming.

Detector Sensors:

The flush mounting pavement sensors shall be of the magnetic field (magnetometer) sensing technology capable of detecting and reporting volume count, speed, occupancy and headway, as a minimum. The sensor section of the detector shall be embedded in the roadway pavement and shall utilize a radio transmitter link for the detector to a receiver radio being provided to the traffic controller and/or central monitoring server. The detector sensor embedded in the pavement shall not exceed a four (4) inch diameter and a depth of two (2) inches and shall be installed in a four (4) inch diameter, two and a half (2.5) inch deep cored hole in the pavement, centered in the travel lane. Detector sensors, embedded at a distance greater than one-hundred and fifty (150) feet from the receiver unit installed at the traffic controller cabinet, shall have a repeater installed to relay the sensor data to the receiver. The embedded detector sensor shall be battery operated with a battery design rated for ten (10) year life in this application.

Each detector sensor unit shall self-calibrate and self-configure their electronics for proper detection application. Each sensor unit shall be provided with flash memory upgrade capability to allow upgraded operation or safety enhancements to be "flashed" into local memory without removing the device for the pavement.

Radio Transceivers:

Radio transceivers shall utilize devices that are compliant with IEEE 802.15.4 standards and are able to operate on any of the allocated 16 channels of the 2.4 to 2.48 GHz spectrum. The factory support shall include the programming of the embedded sensor time slots and shall provide a written copy of the final design to the Traffic Engineer plus one copy for the traffic controller cabinet. One software set of device programming (GUI), if other than standard WEB Browser via SNMP protocol, shall be provided for each intersection where devices are installed. The factory representative shall certify proper installation of the devices, the radio links, device settings and the traffic controller detector assignments. The factory representative shall provide an on-site computer and shall link to the Access Box for all programming. The

GUI software shall provide real time management and monitoring of the Detector Sensing System as well as the Event Processing Software. One copy of the Event Processing Software shall be provided.

This work shall be paid at the contract unit price **EACH** which price shall be payment in full for all work as described herein and as directed by the Engineer.

Item AZ-36 WIRELESS DETECTION SYSTEM, SINGLE APPROACH

Description.

This item shall conform with the specification for Wireless Detection System (Complete Intersection) except as revised herein.

The system shall consist of a minimum of twelve (12) flush mounting pavement detector sensors, one (1) access point, one (1) repeater and associated contact closure cards for a single intersection approach with multiple lanes.

This work shall be paid at the contract unit price **EACH** which price shall be payment in full for all work as described herein and as directed by the Engineer.

Item AZ-37 RADAR PRESENCE DETECTOR

The furnishing and installation of a Radar Presence Detector shall meet the requirements of the Cook County Special Provisions except as revised with this Special Provision.

This work will be paid at the contract unit price EACH for RADAR PRESENCE DETECTOR, as described above, which price will be payment in full for furnishing, installing and setting up the detection system, with necessary connections and programming for proper operation.

The cable will be in accordance with the recommendation of the manufacturer of the Radar Presence Detector. The detection cable will be paid for at the contract unit price per FOOT for ELECTRIC CABLE, RADAR PRESENCE DETECTOR which price will be payment in full for furnishing and installing the detection cable, as specified herein, with all necessary connections for proper operation.

Item AZ-38 WIRELESS INTERCONNECT SYSTEM

Description.

The radio interconnect system shall be compatible with Eagle/Siemens or Econolite controller closed loop systems. This item shall include all materials, labor and testing to provide the completely operational closed loop system between two (2) intersections 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 or Disk 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: Encon Model 5100 and Intuicom Communicator II.

This work shall be paid at the contract unit price **EACH** which price shall be payment in full for all work as described herein and as directed by the Engineer.

Item AZ-39 INSTALL TRAFFIC SIGNAL SECTION

Item AZ-40 INSTALL TRAFFIC SIGNAL LENS

Item AZ-41 SIGNAL HEAD, 1-FACE, 3-SECTION

Item AZ-42 SIGNAL HEAD, 1-FACE, 4-SECTION

Item AZ-43 SIGNAL HEAD, 1-FACE, 5 SECTION

Item AZ-44 OPTICALLY PROGRAMMED SIGNAL HEAD,LED, 1-FACE, 3-SECTION

Item AZ-45 OPTICALLY PROGRAMMED SIGNAL HEAD, LED, 1-FACE, 4-SECTION

Item AZ-46 OPTICALLY PROGRAMMED SIGNAL HEAD, LED,1-FACE, 5-SECTION

Item AZ-47 OPTICALLY PROGRAMMED SIGNAL HEAD, REMOTELY STEERABLE OPTICS, LED, 1-FACE, 3-SECTION

Item AZ-48 OPTICALLY PROGRAMMED SIGNAL HEAD, REMOTELY STEERABLE OPTICS, LED,

1-FACE, 4-SECTION

Item AZ-49 OPTICALLY PROGRAMMED SIGNAL HEAD, REMOTELY STEERABLE OPTICS, LED, 1-FACE, 5-SECTION

Item AZ-50 PEDESTRIAN SIGNAL HEAD, 1-FACE

Item AZ-51 SIGNAL HEAD, LED, 1-FACE, 1-SECTION

Item AZ-52 SIGNAL HEAD, LED, 1-FACE, 3-SECTION

Item AZ-53 SIGNAL HEAD, LED, 1-FACE, 4-SECTION

Item AZ-54 SIGNAL HEAD, LED, 1-FACE, 5-SECTION

Item AZ-55 PEDESTRIAN SIGNAL HEAD, LED, 1-FACE

Item AZ-56 SIGNAL HEAD, LED, 1-FACE, 1-SECTION, RETROFIT

Item AZ-57 SIGNAL HEAD, LED, 1-FACE, 3-SECTION, RETROFIT

Item AZ-58 SIGNAL HEAD, LED, 1-FACE, 4-SECTION, RETROFIT

Item AZ-59 SIGNAL HEAD, LED, 1-FACE, 5-SECTION, RETROFIT

Item AZ-60 PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, RETROFIT

Item AZ-61 CONFIRMATION BEACON, RETROFIT

The installation of a signal head, optically programmed signal head and pedestrian signal head shall meet the applicable requirements of Sections 880 and 881 of the Standard Specifications and the Cook County Special Provisions., except as follows:

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) or galvanized. A corrosive resistant anti-seize lubricant shall be applied to all metallic mounting bracket joints, and shall be visible to the inspector at the signal turn-on. Post top mounting collars are required on all posts, and shall be constructed of the same material as the brackets.

All connecting hardware and mounting brackets shall be of the inverted post top mounting (horizontal post top) or with post top mounting collars, with black polycarbonate or galvanized brackets. **Aluminum mounting hardware will not be allowed**. All metal to metal joints to have anti-seize compound applied. The anti-seize compound shall be visible to the inspector at the signal turn-on. Bracket mounted signal heads shall be mounted with stainless steel bands at both the top and bottom of the head. Signal heads are to be positioned according to the "District 1 Standard Traffic Signal Design Details". The signal visors that are furnished with a signal head shall be made of the same kind of material as the signal head.

A signal head mounted to a signal post or a mast arm pole shall have a minimum clearance of ten (10) feet (3 m) above the pavement. Optically Programmed signal heads used for distance limiting shall have a minimum clearance of twelve (12) feet (3.6 m) above the pavement. These standard mounting heights shall apply unless otherwise specified.

Remotely Steerable Optics:

This item shall provide a visibility zone of red, yellow and green, without requiring louvers or other external blocking devices to achieve the end result. No indication shall result from external illumination nor shall one section illuminate another. The LEDs are steered using one (1) Wi-Fi enabled a PDA. Manufacturer shall warrant the remotely steerable optic head to be free from defects in material and workmanship for a minimum of seven (7) years from date of turn-on.

Mast arm mounted signal heads shall include louvered traffic signal backplates. The backplate shall be included in the cost of the signal head.

Pedestrian signal head lenses shall be furnished with the international symbolic "Walking Person" and "Upraised Palm". The visor shall be of the tunnel type. Egg crate sun shields are not permitted. The normal mounting height shall be seven (7) feet (2.1 m) above the pavement or sidewalk.

Lamps shall be manufactured by Duratest, Sylvania, or an approved equal.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing the signal head, optically programmed signal head, or pedestrian signal head complete and shall include the removal of any existing sections, lenses or heads being replaced by these items.

Item AZ-62 PEDESTRIAN COUNTDOWN SIGNAL HEAD, 1-FACE

This item shall meet the requirements in the Cook County special Provision for Pedestrian CountDown Signal Head, LED.

This item shall conform with sections 881 of the Standard Specifications for Road and Bridge Construction, District 1 Traffic Signal Specifications, the current Highway Standard "Traffic Signal Mounting Details" and District 1 Standard Signal Design Details, except as revised herein. This work shall consist of furnishing and installing a pedestrian countdown signal head, with light emitting diodes (LED) of the type specified in the plan. At locations where new pedestrian signal head(s) or faces are replacing an existing pedestrian signal head(s) or faces, the removal shall be included in this item and the Contractor shall retain the used existing pedestrian signal head(s) or faces. Existing pedestrian push button signing shall be replaced with new count-down type signs (R10-3e, 9-inch x 15-inch) with associated sign station or housing at locations where existing push buttons are not being replaced.

All mounting hardware shall be new and shall be included in the pay item for signal head. The pay item listed below shall include either pole mounts or post mounts as required by the plans or directed by the Signal Engineer. Any modifications to mounting hardware shall be included in this item.

Pedestrian Countdown Signal Head, Light Emitting Diode, shall be 16 inch (406mm) x 18 inch (457mm) and conform fully to the District 1 Traffic Signal Specifications.

This work shall be paid for at the contract unit price **EACH** for Pedestrian Countdown Signal Head, LED, which shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of faces and the method of mounting.

Item AZ-63 ACCESSIBLE PEDESTRIAN SIGNAL

This item shall consist of furnishing and installing accessible pedestrian signals (APS). Each APS shall consist of an interactive pedestrian pushbutton with speaker, an information sign, a solid state electronic control board, a power supply, wiring and mounting hardware. The APS shall meet the requirements of the MUTCD and Section 801 and 873 of the Standard Specifications and the IDOT Special Provision for Accessible Pedestrian (APS).

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. 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 "WALK SIGN", which may be followed by the name of the street to be crossed. No other messages shall be used to denote the WALK interval. Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 89 dB. 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). If a pushbutton is depressed for three seconds, a custom verbal message shall be given before the walk cycle goes into effect which tells the pedestrian their location or other pertinent information about the intersection. A red light emitting diode (LED) shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

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. This arrow shall meet the requirements of Section X02.5.1.4 of the U.S. Access Board's "Public Rights-of-way Access Advisory Committee Report, 2001".

Vibrotactile Feature. When specified on the plans, vibrotactile messages shall also be provided at each pedestrian pushbutton. The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

This work shall be paid at the contract unit price **EACH** per pushbutton which price shall be payment in full for furnishing and installing the accessible pedestrian signal complete including vibrotactile feature When specified on the plans.

Item AZ-64 ILLUMINATED SIGN, LED

The installation of an Illuminated Sign, LED shall meet the requirements of Section 891 and the Cook County Special Provisions.

This work will be paid for at the contract unit price per EACH for which price shall be payment in full for furnishing and installing the light emitting diode illuminated sign complete.

Item AZ-65 ILLUMINATED STREET NAME SIGN, LED (4 Foot)

Item AZ-66 ILLUMINATED STREET NAME SIGN, LED (6 Foot)

Item AZ-67 ILLUMINATED STREET NAME SIGN, LED (8 Foot)

The installation of an Illuminated Sign, LED shall meet the requirements of the Cook County Special Provisions.

This work will be paid for at the contract unit price EACH which price shall be payment in full for furnishing and installing the illuminated street sign, LED complete with photo cell and the necessary connections for proper operation.

Item AZ-68 RELOCATE ILLUMINATED STREET NAME SIGN

This item shall consist of relocating the existing illuminated street name sign from an existing traffic signal mast arm to the new traffic signal mast arm as indicated in the plans or as directed by the Engineer.

The work shall include disconnecting illuminated sign and reconnecting it to the new cable.

If a new traffic signal controller and cabinet is being installed the existing Illuminated sign controls shall be removed from the existing controller cabinet and installed into the proposed controller cabinet (contactor, photocontrol, fuseholder, fuses, etc.).

Basis of Payment. This item will be paid for at the contract unit price EACH for RELOCATE EXISTING ILLUMINATED STREET NAME SIGN, which price shall be payment in full for disconnecting the existing Illuminated sign, relocating and connecting the illuminated sign to the new cable complete including controls, wiring and operating to the satisfaction of the Engineer.

The Illuminated street name sign cable will be paid for at the contract unit price per FOOT for ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 14 3C, TYPE SOOW, which price shall be payment in full for furnishing and installing the cable and making all electrical connections. The length of measurement shall be the distance horizontally measured between changes in direction, including cable in mast arms and slack cables. Slack cables will be paid for as lead-in cables in conduit.

Item AZ-69 TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM

The furnishing and installation of this item shall meet the requirements of Section 882 of the Standard Specifications, except as follows:

Backplates are to be aluminum and louvered with a minimum thickness of 0.05 inch (1.3 mm).

The surface of the backplate shall provide openings (louvers) to allow wind to penetrate and thereby reduce the wind loading on the mast arm and pole. The louver openings shall cover a minimum of twenty (20) percent of the surface area of the backplate. The louvers shall be designed not to deter the purpose of the backplate, which is to shield the signal lens from sunlight. The louvers shall be spaced symmetrically on the backplate in such a way as not to adversely affect its structural integrity.

When more than one backplate is mounted on a pole or post, their louvered symmetry shall be the same.

This work will be paid for at the contract unit price **EACH** for TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM, which price shall be payment in full for furnishing and installing the traffic signal backplate complete and shall include the removal of any backplates being replaces by this item.

Item AZ-70 TRAFFIC SIGNAL BACKPLATE, REFLECTIVE

Delete 1st sentence of Article 1078.03 of the Standard Specifications and add "All backplates shall be aluminum and louvered". Delete second sentence of the fourth paragraph of Article 1078.03 of the Standard Specifications. Add the following to the fourth paragraph of Article 1078.03 of the Standard Specifications:

Reflective sheeting shall be Type ZZ according to Article 1091.03, 2-inches wide and applied in the manufacturer's preferred orientation for the maximum angularity according. The retro reflective sheeting shall be installed under a controlled environment at the manufacturer/supplier facilities before shipment of the contractor. The aluminum backplate shall be prepared and cleaned, following recommendations of the retro reflective sheeting manufacturer.

Item AZ-71 FLASHING BEACON, LOW MOUNTED, ONE FACE

This item shall conform with Sections 800 and 1000 of the Standard Specifications, the Cook County Special Provisions and "Details of Span Wire Mounted Signals and Flashing Beacon Installations" Standard No. 880001.

This item shall consist of furnishing and installing a low mounted twelve (12) inch single LED section red or amber flashing beacon on an existing post, as directed by the Engineer. Work shall include furnishing and installing flasher controller in cabinet, service installation pole mounted, 12" red or amber LED section, and all other incidentals necessary to complete the installation. This item shall not include underground conduit and cable installation between the service installation and the base of the flashing beacon.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing a flashing beacon complete with the necessary connections for proper operation.

Item AZ-72 FLASHING BEACON, SPAN WIRE MOUNTED, ANY NUMBER OF FACES AS ONE SIGNAL HEAD

This item shall conform with Sections 800 and 1000 of the Standard Specifications, the Cook County Special Provisions and "Details of Span Wire Mounted Signals and Flashing Beacon Installations" Standard. This work shall include furnishing and installing a flasher controller in a covered metal cabinet, the service installation pole mounted, 12" LED red and/or amber sections as required, poles, cable, messenger wire, and all other incidentals necessary to complete the installation.

This item shall not include underground conduit and cable installation between the service installation and the base of the flashing beacon pole.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing the flashing beacon complete with the necessary connections for proper operation.

Item AZ-73 FLASHING BEACON, LOW MOUNTED, ONE FACE, SOLAR POWERED

Item AZ-74 FLASHING BEACON, LOW MOUNTED, ONE FACE, SOLAR POWERED WITH PROGRAMMABLE TIME CLOCK

This item shall conform with Sections 800 and 1000 of the Standard Specifications, the Cook County Special Provisions and "Details of Span Wire Mounted Signals and Flashing Beacon Installations" Standard.

The Solar Flashing Beacon shall have a peak intensity of 400 candela with a 30 degree horizontal divergence. The unit shall have an operating temperature between -40° F to 176° F. The Flasher unit shall be MUTCD compliant and have alternate flash patterns available. The LED module shall be ITE VTCSH-STD Part 2 compliant. It shall be able to operate 24 hours a day for 40 days without any additional charging. The batteries and solar panel shall be post top mounted.

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.

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.

This item shall consist of furnishing and installing flasher controller, solar panel, programmable time clock, twelve (12) inch single section red or amber LED flashing beacon on an existing or new post as directed by the Engineer and all other incidentals necessary to complete the installation. This item shall not include post and foundation installation.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing a flashing beacon, low mounted, one face, solar powered or flashing beacon, low mounted, one face, solar powered with programmable time clock complete with the necessary connections for proper operation.

Item AZ-75 UNITERRUPTIBLE POWER SUPPLY SYSTEM INSTALLATION

This item shall conform to the Cook County Special Provisions for Uninterruptible Power Supply.

This work will be paid for at the contract unit price **EACH** for furnishing and installing the backup battery installation. The price shall include the UPS unit, bypass switch, batteries (four or six etc., as recommended by the manufacturer), cabinet, wiring harnesses, and all associated equipment and materials necessary for proper operation.

Item AZ-76 RELOCATE EXISTING TRAFFIC SIGNAL HEAD

Item AZ-77 RELOCATE EXISTING TRAFFIC SIGNAL POST

These items shall conform with Section 895 of the Standard Specifications and the Cook County Special Provisions.

All mounting hardware shall be new and shall be included in the pay item for signal head. The pay item listed below shall include either mast arm mounts, pole mounts or post mounts as required by the plans or directed by the Signal Engineer. Any modifications to mounting hardware shall be included in this item.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing all necessary materials and labor to relocate the Traffic Signal Head or Traffic Signal post.

Item AZ-78 TRAFFIC SIGNAL POST, 3' TO 18' LONG

Item AZ-79 PEDESTRIAN PUSHBUTTON POST

The furnishing and installation of this item shall meet the requirements of Sections 875 and 876 of the Standard Specifications, County Special Provision and District One Traffic Signal Detail Sheet..

If the Department approves painting, powder coating by the manufacturer will be required over the galvanization.

This work will be paid for at the contract unit price **EACH** for TRAFFIC SIGNAL POST, of the length specified or PEDESTRIAN PUSH-BUTTON POST, which price shall be payment in full for furnishing and installing the traffic signal post, base, foundation for pedestrian post, nuts and washers, and pipe cap complete and shall include the removal of any existing post being replaced by this item.

Item AZ-80 PEDESTRIAN PUSHBUTTON

This item shall meet Section 888 of the Specifications and the Cook County Special Provision shall consist of furnishing and installing a push button assembly which ADA compliant, highly vandal resistant, be pressure activated with minimal movement and can not be stuck in the normal or constant call position.

The Pedestrian Push-button assembly shall be one piece cast aluminum alloy with momentary LED or latching type LED display, as directed by the Traffic Signal Engineer, such as the Campbell 4EVR 120 or Polara Bulldog type, or an approved equivalent and include pedestrian push button station and sign.

This work shall be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing the pushbutton assembly complete.

Item AZ-81 STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 16' TO 28')

Item AZ-82 STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 30' TO 44')

Item AZ-83 STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 46' TO 55')

Item AZ-84 STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 56' TO 65')

Item AZ-85 STEEL MAST ARM ASSEMBLY AND POLE (MAST ARM 66' TO 75')

The furnishing and installation of a Steel Mast Arm Assembly and Pole and/or Steel Combination Mast Arm Assembly and Pole shall meet the requirements of Section 877 of the Standard Specifications, Plans, the Cook County Special Provisions except as follows:

Prior to the final acceptance of any Steel Mast Arm Assembly and Pole, and/or Steel Combination Mast Arm Assembly and Pole, the Contractor must furnish to the Engineer a certified, notarized mill analysis of the material used in the Steel Mast Arm Assembly and Pole.

This item, when applicable, shall include the relocation of existing sign panels currently installed at the location.

If the proposed mast arm assembly is replacing an existing mast arm, the removal of the existing mast arm assembly shall be included in this item.

The mast arm shroud shall be included in this item and shall be galvanized steel or extruded aluminum for protection of the mast arm pole base plate similar to the dimensions detailed in the "District 1 Standard Traffic signal Design Details." The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall allow it to circulate throughout the mast arm but not allow manifestation of insects or critters. The shroud shall be constructed, installed, and designed not to be hazardous to probing fingers and feet. All mounting hardware shall be stainless steel.

Shroud shall fit any pole size supplied by the manufacturer.

When the new Steel Mast Arm Assembly and Pole is being installed on an existing foundation to replace an existing Steel Mast Arm Assembly and Pole, the removal of the existing Steel Mast Arm Assembly and

Pole shall be incidental to this item. The Contractor shall retain ownership of the existing Steel Mast Arm Assembly and Pole.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing the Steel Mast Arm Assembly and Pole anchor bolts, nuts, washers, and connected to a ground rod as shown on the Standard, complete. This item shall include the removal of any existing mast arm assembly and pole being replaced and the relocation of any existing sign panels currently installed on the existing mast arm assembly and pole.

Item AZ-86 INSTALL EXISTING MAST ARM ASSEMBLY AND POLE

This item shall consist of installing a mast arm assembly and pole at a location as directed by the Engineer. The mast arm assembly and pole shall come from County stock. It shall be installed on an existing foundation or a new foundation as required. If a new foundation is required it will be paid for separately.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing all necessary materials and labor to install the mast arm assembly and pole.

Item AZ-87 REMOVE EXISTING MAST ARM ASSEMBLY AND POLE. This item shall consist of removing an existing mast arm assembly and pole at a location as directed by the Engineer and shall conform to Section 895 of the Standard Specifications and the Cook County Special Provisions.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing all necessary materials and labor to remove the mast arm assembly and pole.

Item AZ-88 REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

Item AZ-89 REMOVE EXISTING TRAFFIC SIGNAL HEAD

Item AZ-90 REMOVE EXISTING TRAFFIC SIGNAL SECTION

Item AZ-91 REMOVE EXISTING TRAFFIC SIGNAL POST

This item shall consist of removing the existing traffic signal equipment at a location as directed by the Engineer and shall conform to Section 895 of the Standard Specifications and the Cook County Special Provisions.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing all necessary materials and labor to remove the items.

Item AZ-92 thru AZ-110 ELECTRIC CABLE IN CONDUIT OR AERIAL OF THE TYPE, SIZE AND NUMBER OF CONDUCTORS AS SHOWN

The installation of a Signal Cable shall meet the requirements of Section 873 of the Standard Specifications and the Cook County Special Provisions except as follows:

When a new cable is being installed to replace an existing cable, the removal of the existing cable shall be incidental to this item.

When using coaxial cable for video detectors, coaxial cable shall be 75 ohm with polyethylene insulation and polyethylene jacket, 20 AWG solid bare copper conductors, and tinned copper braid double braid, 98% shield coverage. Cable to be Belden 8281 or approved equal.

When using twisted pairs communication and power wire for video detectors, the cable shall consist of five and one half twisted pairs communication and power wire –16 AWG, four pair for communications, detection, and video, and one and one half pair for power. There shall be an overall shield with drain wire and an overall UV resistant with Low Density Polyethylene jacket. The twisted pair component shall have 26 strands 30AWG tin plated copper conductor per ASTM B-33. Cable to be Belden YC46223 or approved equal.

When using three-wire power cable for AutoScope Solo Terra video vehicle detection system, the cable shall be 3 conductor with 18 AWG (16 x #30) SEPTC with HDPE insulation and HDPE jacket.

Interfacing connectors shall be of the same size and type as the cable, furnished and installed as needed and complied with the manufacturer's recommendations. All connectors installed outside or exposed to weather shall be furnished with a weatherproofing kit recommended by the manufacturer.

Installation:

The cable shall be carefully installed to avoid damage to the cable jacket. The cable shall be installed in accordance with NEC Article 820. The cable shall not be bent to a radius less than the manufacturers recommended bending radius, either in permanent placement or during installation. Cable splices will not be allowed.

Fasteners used to mount exposed video detector cable shall be compatible with the mounting structure material i.e. wood screws shall be used for wood, toggle bolts shall be used for hollow masonry, expansion bolts or power-set studs shall be used for solid masonry or concrete and clamps shall be used for structural steel. Wire tie-wraps are unacceptable. Cable shall be terminated, with the appropriate connectors.

Testing:

After installation, the cable, together with all connections, shall be tested as approved by the Engineer. The decibel signal loss per linear foot shall comply with the manufacturer's recommendations. Cable failing to pass the test shall be replaced with new cable at no additional cost.

This work will be paid for at the contract unit price per **FOOT** of the type, size, and number of conductors as specified, which price shall be payment in full for furnishing the material and making all electrical connections and installing the cable complete, measured as specified.

Item AZ-111 FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125 MM12F SM24F
Item AZ-112 FIBER OPTIC CABLE - AERIAL, NO. 62.5/125 MM12F SM24FItem AZ-113 ELECTRIC CABLE IN CONDUIT, TRACER - NO. 14 1C

The installation of a Fiber Optic Electric Cable shall meet the requirements of Section 817 and 871 of the Standard Specifications and the Cook County Special Provisions.

This work will be paid for at the contract unit price per **FOOT** which price shall be payment in full for furnishing the material and making all connections and installing the cable complete, measured as specified.

Item AZ-114 SPLICE FIBER IN CABINET. This work shall consist of fusion splicing singlemode fibers in a field cabinet or inside a building as indicated on the plans and as directed by the Engineer. Splices shall be secured in fiber optic splice trays within fiber optic distribution enclosures. The splice trays shall be Corning Models M67-068, M67-110, or approved equivalent, capable of accommodating the required number of fusion splices. Splice trays shall be included in the cost of SPLICE FIBER IN CABINET and shall not be paid for separately.

The quality of all fiber splices shall be verified by testing and documentation in accordance with Article 802.08(b) of the "Standard Specifications", to the satisfaction of the Engineer.

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

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

This work shall be paid for at the contract unit price EACH for 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.

Item AZ-115 ELECTRIC CABLE IN CONDUIT, GROUNDING NO. 6, 1C

The installation of a grounding electric cable shall meet the requirements of Section 817 and 873 of the Standard Specifications and the Cook County Special Provisions.

This work will be paid for at the contract unit price per FOOT which price shall be payment in full for furnishing the material and making all connections and installing the cable complete, measured as specified.

Item AZ-116 GROUNDING EXISTING HANDHOLE FRAME AND COVER

This item shall conform to "District 1 Standard Traffic Signal Design Details" and the Cook County Special Provisions.

This work will be paid for at the contract unit price EACH, grounding existing handhole frame and cover which shall be payment in full for grounding handhole complete.

Item AZ-117 CONCRETE FOUNDATION, TYPE A

Item AZ-118 CONCRETE FOUNDATION, TYPE C

Item AZ-119 CONCRETE FOUNDATION, TYPE D

Item AZ-120 CONCRETE FOUNDATION, TYPE E (30", 36" OR 42")

The installation of a Concrete Foundation shall meet the requirements of Section 878 of the Standard Specifications, the Standard Drawing for Concrete Foundations and the Cook County Special Provisions.

This work will be paid for at the contract unit price per **FOOT** of depth which price shall be payment in full for all necessary excavating or drilling, back filling, disposal of unsuitable material, form work, ground rods and furnishing all materials within the limits of the foundation.

Item AZ-121 MODIFY EXISTING TYPE D FOUNDATION

The modification of existing type D foundation shall meet the requirements of Section 878 of the Standard Specifications and the Cook County Special Provisions.

This item shall consist of the partial removal of an existing Type "D" Foundation at the location as directed by the Signal Engineer. The existing foundation shall be removed to a depth of at least twelve inches below finished grade. The disposal of the concrete debris outside of the right-of-way shall be included in this item. The existing conduit shall remain in place and shall be carefully protected. The new conduits from the double handhole shall be installed, if required.

Installation:
Upon completion of the work, holes for steel dowels of the size indicated shall be drilled in the remaining concrete. The adjacent area shall be excavated and formed with anchor bolts and new conduit stubs to provide a concrete foundation for a type IV or type V cabinet as per the current Highway Standard, "Concrete Foundation Details". The Contractor shall follow the recommendations of the manufacturer, subject to approval of the Engineer.

Provide a 36" x 48" x 5" P.C.C. apron sidewalk on the side of the access door to the controller to facilitate servicing the controller.

Anchor bolts shall be new and shall meet all the requirements of sections 800 and 1000 of the Standard Specifications for Road and Bridge Construction.

This work shall be paid for at the contract unit price **EACH** for modify existing type D foundation, 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. The removal of the existing traffic signal controller shall be incidental to this pay item, as well as the pulling and reinstalling of the existing cable from conduit.

Item AZ-122 PAVEMENT MARKING LINE 24 INCH

This item shall consist of furnishing and installing painted pavement marking for a stop bar and shall meet the requirements of Section 780 of the Standard Specifications. This work will be paid for at the contract unit price per **FOOT** which price shall be payment in full for furnishing and installing a 24 inch painted stop bar.

No.	Description	Revised Date
	Traffic Signal Work General	June 1, 2012
	Construction at Railroad Crossing	June 1, 2012
	Signal Head, Optically Programmed Signal Head and Pedestrian Signal Head	June 1, 2012
	Light Emitting Diode (LED) Traffic Signal	June 1, 2012
	Light Emitting Diode (LED) Pedestrian Countdown Signal Head	June 1, 2012
	Traffic Signal Backplate	June 1, 2012
	Illuminated Sign, Light Emitting Diode	June 1, 2012
	Traffic Signal Post, Pedestrian Pushbutton Post	June 1, 2012
	Steel Mast Arm Assembly and Pole and/or Steel Combination Mast Arm Assembly and Pole	June 1, 2012
	Traffic Actuated Controller, Traffic Actuated Controller with Cabinet, Inductive Loop Detector	June 1, 2012
	Master Controller	June 1, 2012
	Detector Loop	June 1, 2012
	Video Detection System For Temporary Traffic Signal Installation	June 1, 2012
	Pedestrian Pushbutton	June 1, 2012
	Conduit	June 1, 2012
	Coilable Non-Metallic Conduit	June 1, 2012
	Electric Cable	June 1, 2012
	Railroad Interconnect Cable	June 1, 2012
	Fiber Optic Cable	June 1, 2012
	System Ground and Grounding Cable	June 1, 2012
	Grounding Existing Handhole Frame and Cover	Current
	Service Installation, Pole Mounted	June 1, 2012
	Service Installation, Ground Mounted	June 1, 2012
	* Electric Service	June 1, 2012
	Handhole	June 1, 2012
	Rebuild Existing Handhole, Rebuild Existing Heavy Duty Handhole, Rebuild Existing Double Handhole	June 1, 2012
	Concrete Foundation	June 1, 2012
	Modify Existing Type "D" Foundation	June 1, 2012
	Remove Existing Traffic Signal Equipment	June 1, 2012
	Temporary Traffic Signal Installation	June 1, 2012
	Maintenance of Existing Traffic Signal Installation	June 1, 2012
	Emergency Vehicle Priority System	June 1, 2012
	Relocate Existing Emergency Vehicle Priority System, Detector Unit	June 1, 2012

	Relocate Existing Emergency Vehicle Priority System, Phasing Unit	June 1, 2012
	Confirmation Beacon System	June 1, 2012
	Re-Optimize Traffic Signal System	June 1, 2012
	Optimize Traffic Signal System	June 1, 2012
	Median Removal and Replacement	June 1, 2012
	Sidewalk Removal and Replacement	June 1, 2012
	Relocate Existing Light Standard and Luminaire Complete in Place	June 1, 2012
	Maintenance Of Lighting System	June 1, 2012
	City Electric Manholes to be Adjusted	June 1, 2012
	Uninterruptible Power Supply (UPS)	June 1, 2012
	Traffic Signal Cabinet Load Switch	June 1, 2012
	Temporary Traffic Signal Timings	June 1, 2012
	Combination Lighting and Traffic Signal Service Installation, Pole Mounted	June 1, 2012
	Illuminated Street Name Sign	June 1, 2012
	Relocate Existing Illuminated Street Name Sign	June 1, 2012
	Video Detection System, Single Camera Processor Video Detection	June 1, 2012
	Video Detection System, Complete Intersection	June 1, 2012
	Uninterruptible Power Supply Without Cabinet	June 1, 2012
	Modifying Existing Controller Cabinet	June 1, 2012

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL WORK GENERAL

All work and equipment performed and installed under this contract, shall be governed and shall comply to the State of Illinois "Standard Specifications for Road and Bridge Construction" latest edition, herein referred to as the Standard Specifications and the "District One Standard Design Details"; the State of Illinois "Manual on Uniform Traffic Control Devices for Streets and Highways", latest edition; the "National Electrical Code" latest edition herein referred to as the NEC; the National Electrical Manufacturers Association, herein referred to as NEMA (all publications for traffic control items) latest editions; the International Municipal Signal Association, herein referred to as IMSA "Official Wire & Cable Specifications Manual" latest edition; the Institute of Transportation Engineers, herein referred to as the ITE, Technical Report No.1, "A Standard for Adjustable Face Vehicular Traffic Control Heads"; AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals" and the "Supplemental Specifications" and "Recurring Special Provisions" noted herein.

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

In order to reduce possible vehicular conflicts with fixed objects and avoid public criticism, it is necessary to require that no posts, poles, heads, or controller cabinets be installed until all traffic signal control equipment is brought to and located on the job site.

The construction, installation and/or removal work shall be accomplished at all the intersections within the limits of this project or as shown in the plans.

Description of Work. The work to be done 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.

Restoration. All areas and plant material damaged by the installation of Traffic Signal posts, mast arm poles, underground cables or conduits, handholes and control cabinets shall be replaced as follows:

- Grass Areas: Replace top soil to a depth of four (4) inches (100 mm), re-grade shoulders, ditch slopes, and open areas back to former existing grades, fertilize, seed and mulch all damaged areas.

- Sod Areas (areas adjacent to residential, commercial and industrial properties and any other areas as directed by the engineer): Fertilize and re-sod damaged areas.
- Plant Materials: Remove and replace damaged trees, shrubs and vines with the same varieties that existed prior to damage.

- Shoulders other than Stabilized and Backslopes, medians, sidewalks, pavement, etc.: Replace shoulder to original condition and restore edge of backslope to original lines and grades. Medians, sidewalks and pavement shall be replaced in kind.

- All brick pavers disturbed in the work area shall be restored to their original configuration or as directed by the Engineer. All damaged brick pavers shall be replaced with a comparable material approved by the Engineer

All damaged landscape shall be replaced in accordance with Section 250 through 254 of the Standard Specifications.

Any damage, due to the installation of traffic signal equipment; or necessary removal at handholes, jacking pits, and inspection openings, of sidewalks, curbs, gutters, median and island paving, and/or pavement, shall be repaired or replaced by the Contractor. Repair or replacement shall be made with a like material of like thickness to the existing surface. Restoration of traffic signal work area shall be included in related pay items such as foundation, conduit, handhole, trench and backfill, etc.

Control of Traffic Signal Materials.

All work shall meet the requirements of the "Standard Specifications for Road and Bridge Construction", except as follows:

The controller and all control equipment shall be of a manufacturer that is approved by this Department. The manufacturer shall have a representative located in the six (6) county Chicago areas.

The intent of this Section is to prescribe the materials and construction methods commonly used for traffic signal installations. All material furnished shall be new. Traffic materials and equipment shall bear the U.L. label whenever such labeling is available.

All iron and steel products, which are to be incorporated into work shall be domestically manufactured or produced and fabricated. The contractor shall obtain from the iron or steel producer and/or fabricator, in addition to the mill analysis, a certification that all iron or steel materials meet these domestic source requirements.

The application of all coatings, epoxy, galvanizing, painting, etc., to metal products shall be domestically applied.

Metal material other than iron and steel, which are not domestically produced, may be accepted provided:

(a) The contractor notifies the Department in advance of his/her intension to use other than domestically manufactured or produced material.

(b) Written evidence is provided in English of compliance with all requirements of the specifications.

(c) Physical tests conducted by the department verify the acceptability of the material.

Before any signal equipment, including mast arm assemblies, poles, controller cabinets, all control equipment and signal heads, are delivered to the job site, the Contractor shall obtain and forward to the Engineer a certified, notarized statement from the manufacturer, containing the catalog numbers of the

equipment and/or material, guaranteeing that the equipment and/or material, after manufacture, comply in all respects with the requirements of the Specifications and these Special Provisions.

All material approval requests shall be within thirty (30) consecutive calendar days after the Contract is awarded, or at the pre-construction meeting, whichever is first.

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 that have been installed on the job will be done at the Contractor's own risk and may be subject to removal and disposal at the Contractor's expense.

The Contractor must submit the following for approval by the Engineer:

- Three (3) complete set of manufacturer's descriptive literature, drawings, and specifications of the traffic signal equipment, handholes, junction box, cable, conduit and all associated items that will be installed on the contract. Partial or incomplete submittal will be returned without review.

- The contractor shall supply samples of all wire and cable, and shall make up and supply samples of each type of cable splice proposed for use in the work for the-Engineer's approval.

- Seven (7) complete shop drawings of the mast arm assemblies and poles including combination mast arm poles are required, showing in detail the fabrication, anchor bolts, reinforcing materials, design material, thickness of sections and weld sizes. These drawing shall be at least 11" x 17" (275mm x 425mm) in size and adequate quality for microfilming.

- Certain non-standard mast arm poles and assembles will require additional review. The Contractor shall account for additional review time in their schedule.

- Seven (7) copies of a letter from the Traffic Signal Contractor on company letterhead listing contract number or permit number, project location limits, pay item number and description and listing the manufacturer's name and model numbers of the proposed equipment to be supplied and stating that the proposed equipment meets all Contract requirements. The letter will be reviewed by the Engineer to determine whether the equipment to be used is approvable. The letters will be stamped as approved or not approved accordingly and returned to the Contractor.

- Five (5) copies of a letter from the Traffic Signal Contractor listing the System Coordination and Timing (SCAT) consultant's name shall be supplied. The letter will be reviewed by the Engineer to determine whether the SCAT consultant to be used is approved. The letters will be stamped as approved or not approved accordingly and returned to the Contractor.

- 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.

- All above shall be stamped with the Section Number, Permit Number, or Contract Number and Intersection(s) name(s). Pay item numbers shall also be included. If the above required information is

not on each sheet of the above literature or letters, the equipment and material cuts will not be reviewed and shall be returned to the Contractor.

- Exceptions, Deviations and Substitutions. In general, 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.

- After the engineer reviews the submittals for conformance with the design concept of the project, the Engineer will stamp the drawings indicating their status. Since the Engineer's review is for conformance with 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 Departments approval thereof. The Contractor must be in full compliance with contract and specification requirements.

Maintenance and Responsibility.

Revise Article 801.11 to read as follows.

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, Cook County Highway Department, 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 County and the Contractor shall not be responsible for maintaining it during construction. The Contractor shall supply the engineer and the Department's Electrical Maintenance Contractor a 24-hour emergency contact name and telephone number.

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 Design Engineer at (312) 603-1730 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) Projects which call for the storage and re-use of existing traffic signal equipment shall meet the requirements of Article 801.15(C) of the Standard Specifications, which call for a 30 day test period prior to project acceptance.

d) Contracts such as pavement grinding or patching which result in the destruction of traffic signal loops may not require maintenance transfer, unless a pay item of "Maintenance of Existing Traffic Signal Installation" is included in the project. When the pay item of "Maintenance of Existing Traffic Signal Installation" is not included, the Contractor is required to notify of intent to work and an inspection. A minimum of seven (7) working days prior to the loop removal, the Contractor shall notify the Design Engineer at (312) 603-1730, the Department's Electrical Maintenance Contractor and the owner of automatic traffic enforcement prior to the loop removal, 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 agreements or other agreements, at no cost to the contract except for City of Chicago projects in which the detectors shall be replaced. See additional requirements in these specifications under Inductive Loop Detector.

e) The Contractor is further advised that the existing traffic signal(s), and/or the existing temporary installation(s), must remain in operation during all construction stages except for the most essential down time. Any shutdown of the traffic signal installation(s), for a period to exceed fifteen (15) minutes, must have the prior approval of the Engineer. Such approval will generally only be granted during the period extending from 10:00 a.m. to 3:00 p.m. on weekdays. Shutdowns will not be allowed during inclement weather or during Holiday periods. Any other traffic signal shutdown, either for periods in excess of one (1) hour or outside of the 10:00 a.m. to 3:00 p.m. weekday period must have prior approval of the Engineer. The Contractor, prior to the commencement of his work, shall notify the State Electrical Maintenance Contractor, the Cook County Electrical Maintenance Contractor, or the concerned Municipality, of his intent to perform this work.

f) 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 Department's Electrical Maintenance Contractor may inspect any signalizing device on the Department'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.

Damage to Traffic Signal System.

Add the following to Article 801.12(b).

a) Any damaged equipment or equipment not operating properly from any cause whatsoever shall be repaired with new equipment 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 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 will not be accepted. Cable splices outside the controller cabinet will not be allowed.

b) 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 or other agreements. Except in the City of Chicago in which detectors are damaged due to a County project.

Traffic Signal Inspection (Turn – On).

Revise Article 801.15b to read as follows.

a) The Contractor must have all electric work completed, the electrical service installation connected by the utility company and equipment field tested by the Vendor prior to the Department's "turn-on" field inspection. If in the event the Engineer determines the 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. The Department will not grant a field inspection until written certification is provided from the Contractor stating the equipment has been field tested and the intersection is operating according to Contract requirements.

b) When the road is open to traffic, except as otherwise provided in Section 850 of the Standard Specification, 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 Design Engineer at (312) 603-1730 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 (312) 603-9956. The Contractor must invite local fire department personnel to the turn-on when Emergency Vehicle Pre-emption (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 schedule, as well as stage changes and phase changes during construction.

c) 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.

d) 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.

e) 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.

f) 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 acceptable from the Department.

g) All punch list work shall be completed within two (2) weeks after the final inspection. The Contractor shall notify the Design Engineer at (312) 603-1730 to inspect all punch list work. Failure to meet these time constraints shall result in liquidated damage charges of $500 per month per incident.

h) 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 that have been installed on the job will be at the Contractor's own risk and shall be subject to removal and disposal at the Contractor's expense.

i) The Contractor shall furnish the Cook County Highway Department with any special tools or wrenches that may be required for assembling or maintaining the control equipment and traffic control signal head assemblies.

j) All control cable, when complete in place but before permanent connection, shall be subject to insulation tests at the discretion of the Engineer. The tests shall be made with approved insulation resistance testing equipment rated at 500 volts D.C. and witnessed by the Engineer. Results of these tests shall be submitted to the Department in written form, bearing the Engineers signature and shall become part of the project records. A final inspection of the traffic signal installation shall not be held until results of this insulation test have been received.

k) All equipment such as new controllers and allied central equipment with the exception of cable, conduit, and other materials which require the use of the State of Illinois Materials Testing Laboratories, shall be built in the suppliers shop and inspected by a representative of this Department prior to the installation of such equipment, and upon approval of this equipment an inspection ticket will be issued to the Contractor by the inspection agency (State of Illinois Material

Testing Laboratory or the Cook County Highway Mechanical-Electrical Section). The controller and allied control equipment shall be prepared in the suppliers shop and run under a load of a minimum of 500 watts per phase for at least 48 hours before it is inspected for proper operation and sequencing. After it passes this test an inspection ticket will be issued by the Cook County Highway Mechanical-Electrical Section representative and it can then be delivered to the job site for installation.

l) Upon completion of the installation, a final inspection will be carried out by qualified representatives of the Highway Agencies involved.

m) If the Contractor fails to comply with any of the aforementioned requirements, the County shall impose such sanction as it may determine to be appropriate including but not limited to withholding all payments to the Contractor on this contract until the provisions of this special provision are complete with and/or implementation of article 108.10 of the standard specifications.

At the final inspection it will be required that the Contractor will have submitted to the Engineer all necessary inspection tickets for all new equipment and materials installed under this Contract. If the Contractor has not obtained the inspection tickets on any portion of the new equipment and materials, the representative of this Department will have the authority to postpone the final inspection until such time as the above has been satisfied. Any postponement of the final inspection for this reason shall not relieve the Contractor of his full maintenance responsibilities until such time as the installation is re-inspected and accepted by the County.

The County requires the following from the Contractor at traffic signal turn-on.

1) The Contractor shall, at the turn-on furnish one set of signal plans (24"x36") of record with field revisions marked in red ink to the maintaining agency.

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 permanent and temporary traffic signal turn-on. The representative shall be knowledgeable of both cabinet design and controller functions and shall have sufficient test and spare equipment to make the traffic signal installation operational.

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) or 22" x 34" (560 mm x 860 mm) of the cabinet wiring diagrams and cable logs.

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, 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, manufacturers 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 warranties and guaranties required by Article 801.14.

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."

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."

Location of Underground State and County Maintained Facilities.

Revise Article 803 to read as follows.

If this contract requires the services of an electrical contractor, the Contractor shall be responsible at his/her own expense for locating existing IDOT and CCHD facilities prior to performing any work. If this contract does not require the services of electrical contractor, the Contractor may request one free locate for existing IDOT and CCHD electrical facilities from the Electrical Maintenance Contractor(s) 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 D.I.G.G.E.R. at (312) 744-7000 and for all other locations contact J.U.L.I.E. at 1-800-892-0123 or 811.

SPECIAL PROVISION
FOR
CONSTRUCTION AT RAILROAD CROSSING

Prior to the start of work, the Contractor is required to contact the railroad as listed below for requirements pertaining to construction in the vicinity of its existing railroad crossing.

The following is a preliminary summary of the requirements obtained by the County from the Railroad, including approximate costs to the contractor.

1) Prior to the start of any work the contractor is required to obtain, from the Railroad, a Right-Of-Entry Agreement with the Railroad. Cost =

   The Railroad official to be contacted is:
   NAME:
   PHONE:
   DOT CROSSING NUMBER:

2) The Contractor is required to use Railroad flagmen during construction. Approximate Cost = $600 per day per flagman.

3) The contractor will be required to carry Railroad Protective Liability and Property Damage Liability Insurance in accordance with Article 107.11 of the Standard Specifications. The limits of liability shall be in accordance with Article 107.11 of the Standard Specifications unless otherwise noted. A separate policy is required for each railroad indicated below unless otherwise noted.

NAMED INSURED	NUMBER AND SPEED OF PASSENGER TRAINS	NUMBER AND SPEED OF FREIGHT TRAINS

APPROVAL OF INSURANCE: The ORIGINAL and one CERTIFIED copy of each required policy shall be submitted to the Resident Engineer for approval. The Contractor will be advised when the Department has received approval of the insurance from the railroad(s). Before any work begins on railroad right-of-way, the Contractor shall submit to the Resident Engineer evidence that the required Railroad Protective Liability Insurance has been approved by the railroad(s). The Contractor shall also provide the Resident Engineer with the expiration date of each required policy.

The cost to the contractor for payments to the Railroad for all required permits, insurance, flagmen, cable locates, and any other requirements as dictated by the Railroad, shall be incidental to the contract. The County will not reimburse the contractor for these costs, and no additional compensation will be allowed.

Prior the start of work, the contractor shall present proof, to the County, of fulfilling the Railroad's permit and insurance requirements.

SPECIAL PROVISION
FOR
SIGNAL HEAD, OPTICALLY PROGRAMMED
SIGNAL HEAD AND PEDESTRIAN SIGNAL HEAD

The installation of a signal head, optically programmed signal head and pedestrian signal head shall meet the applicable requirements of Sections 880, 881 and 1078 of the Standard Specifications, except as follows:

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 corrosive resistant anti-seize lubricant shall be applied to all metallic 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.

Bracket mounted signal heads shall be mounted with stainless steel bands at both the top and bottom of the head.

The signal visors that are furnished with a signal head shall be made of the same kind of material as the signal head.

Signal heads shall be positioned according to the "District 1 Standard Traffic Signal Design Details."

A signal head mounted to a signal post or a mast arm pole shall have a minimum clearance of ten (10) feet (3 m) above the pavement. Optically Programmed signal heads used for distance limiting shall have a minimum clearance of twelve (12) feet (3.6 m) above the pavement. These standard mounting heights shall apply unless otherwise specified.

Pedestrian signal head lenses shall be furnished with the international symbolic "Walking Person" and "Upraised Palm". The visor shall be of the tunnel type. Egg crate sun shields are not permitted. The normal mounting height shall be seven (7) feet (2.1 m) above the pavement or sidewalk.

Optical Unit. The optical unit shall be according to ITE Standards. Only symbolic walk (walking person) and don't walk (upraised palm) indications shall be used.

(1) The conventional signal section shall be according to the following.

a. Lamp. The lamps shall be an incandescent type and a minimum 85 percent Krypton filled. The lamp for a 12 in. (300 mm) section shall be nominal 135 W, 1650 minimum initial lumens with a minimum average rated life of 16,000 hours (1.83 year). The pedestrian signal lamp for a 12 in. (300 mm) section shall be nominal 90 W, 1040 lumens with a minimum average rated life of 8,000 hours (0.91 year).

b. Reflector. The reflector shall be a parabolic silvered glass or Alzak aluminum.

c. Dimmer. When specified on the plans, signal dimmers shall be provided for 12 in. (300 mm) yellow signal sections. The dimmer shall allow the signal lamp to operate at full intensity under daylight

conditions and to reduce proportionally to 25 ± 5 percent of full intensity at night. A dimmer shall not control more than one yellow section for each direction.

(2) The optically programmed signal section shall be according to the following.

a. Lamp. The lamp shall be a nominal 150 W sealed beam unit having an integral reflector and a minimum average rated life of 6,000 hours (0.68 year).

b. Optical Limiter-Diffuser. The optical limiter-diffuser shall provide an imaging surface at focus on the optical axis for objects 900 to 1,200 ft (275 to 365 m) distance and permit an optical masking tape to be variously applied as determined by the desired visibility zone. The optical limiter diffuser shall be provided with positive indexing means and composed of heat-resistant glass.

c. Objective Lens. The objective lens shall be a high resolution planar incremental lens hermetically sealed with a flat laminate of weather-resistant acrylic. The lens shall be symmetrical in outline and capable of being rotated to any 90 degree orientation about the optical axis. The projected signal indication shall be capable of being veiled anywhere within 15 degrees of the optical axis. The indication shall not result from external illumination and shall be according to the ITE Standards.

d. Photo Control. The photo control shall comprise an integrated, directional light sensing and regulating device interposed between lamp and line wires. The lamp intensity shall not be less than 37 percent of uncontrolled intensity at 1,000 ft candles (10,000 lux) and shall be reduced to 15 ± 2 percent of maximum at less than 1 ft candle (10 lux). The response shall be proportional and essentially instantaneous to any detectable increase of illumination from darkness to 1,000 ft candles (10,000 lux) and damped for any increase from 1,000 ft candles (10,000 lux). The photo control shall of 7 in. (175 mm) in length and the visor for a 12 in. (300 mm) signal section shall be a minimum of 9 in. (225 mm) in length.

Lamps shall be manufactured by Duratest, Sylvania, or an approved equal.

Basis of Payment. This work will be paid for at the contract unit price EACH for SIGNAL HEAD, OPTICALLY PROGRAMMED SIGNAL HEAD, OR PEDESTRIAN SIGNAL HEAD of the type specified, which price shall be payment in full for furnishing and installing the signal head, optically programmed signal head, or pedestrian signal head complete. If a signal head with both conventional and optically programmed signal faces is required, it will be paid for as a COMBINATION SIGNAL HEAD.

The type specified shall indicate the number of signal faces, the number of signal sections in each signal face and the method of mounting. The sizes of the lenses shall be as indicated on the Plans. For example: SIGNAL HEAD, 1-FACE, 4-SECTION, BRACKET MOUNTED or PEDESTRIAN SIGNAL HEAD, 1-FACE, BRACKET MOUNTED.

SPECIAL PROVISION
FOR
LIGHT EMITTING DIODE (LED) TRAFFIC SIGNAL

This work shall consist of furnishing and installing a traffic signal head or pedestrian signal head with light emitting diodes (LED) of the type specified in the plan or retrofitting an existing traffic signal head with a traffic signal module or pedestrian signal module with LEDs as specified in the plans.

LED signal heads (All Face and Section Quantities), (All Mounting Types) shall conform fully to the requirements of Sections 880 and 881 and Articles 1078.01 and 1078.02 of the Standard Specifications amended herein:

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.

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 County.

(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.

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°C.

2. The modules shall meet or exceed the illumination values stated in Article 1078.01(3)c of 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°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. 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

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) 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 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).

Basis of Payment. This item shall be paid for at the contract unit price EACH for SIGNAL HEAD, LED, or OPTICALLY PROGRAMMED SIGNAL HEAD, LED, PEDESTRIAN 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 faces, the number of signal sections, and the method of mounting.

When installed in an existing signal head, this item shall be paid for at the contract unit price EACH for SIGNAL HEAD, LED, OPTICALLY PROGRAMMED SIGNAL HEAD, LED, PEDESTRIAN SIGNAL HEAD, LED of the type specified, RETROFIT, which price shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of signal faces, the number of signal sections, and the method of mounting.

SPECIAL PROVISION
FOR
LIGHT EMITTING DIODE (LED) PEDESTRIAN COUNTDOWN SIGNAL HEAD

The installation of an Pedestrian Countdown Signal Head, Light Emitting Diode shall meet the requirements of Section 881 and 1078.02 of the Standard Specifications, except as follows:

Description.

This work shall consist of furnishing and installing a pedestrian countdown signal head, with light emitting diodes (LED) of the type specified in the plans.

Pedestrian Countdown Signal Head, Light Emitting Diode, shall conform fully to the SIGNAL HEAD, LIGHT EMITTING DIODE specification, with the following modifications:

Application.

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

2. All pedestrian signals at an intersection shall be the same type and have the same display. No mixing of countdown and other types of pedestrian traffic signals will be permitted.

Installation.

1. 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.

2. 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).

Material.

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.

Basis of Payment. This item shall be paid for at the contract unit price EACH for PEDESTRIAN COUNTDOWN SIGNAL HEAD, LED, of the type specified, which shall be payment in full for furnishing the equipment described above including LED(s) modules, all mounting hardware, and installing them in satisfactory operating condition. The type specified will indicate the number of faces and the method of mounting.

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL BACKPLATE

The furnishing and installation of this item shall meet the requirements of Section 882 and 1078.03 of the Standard Specifications, except as follows:

Backplates shall be aluminum and louvered with a minimum thickness of 0.05 inch (1.3 mm).

The surface of the backplate shall provide openings (louvers) to allow wind to penetrate and thereby reduce the wind loading on the mast arm and pole. The louver openings shall cover a minimum of twenty (20) percent of the surface area of the backplate. The louvers shall be designed not to deter the purpose of the backplate, which is to shield the signal lens from sunlight. The louvers shall be spaced symmetrically on the backplate in such a way as not to adversely affect its structural integrity.

When more than one backplate is mounted on a pole or post, their louvered symmetry shall be the same.

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.

The reflective backplate shall not contain louvers.

Basis of Payment. This work will be paid for at the contract unit price EACH for TRAFFIC SIGNAL BACKPLATE, of the type specified , which price shall be payment in full for furnishing and installing the traffic signal backplate complete.

SPECIAL PROVISION
FOR
ILLUMINATED SIGN, LIGHT EMITTING DIODE

The furnishing and installation of this item shall meet the requirements of section 891 and 1084.01 except as follows.

Description. This work shall consist of furnishing and installing an illuminated sign with light emitting diodes.

General. 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.

Display. 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. The message shall be highly visible, anywhere and under any lighting conditions, within a 15 degree cone centered about the optic axis.

The message shall be formed by rows of LEDs. The sign face shall be 24 inches (600 mm) by 24 inches (600 mm). 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 (5mm) and have an expected lamp life 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.

Housing. 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. The housing shall be the same color (yellow or black) to match the existing or proposed signal heads.

Mounting hardware shall be black polycarbonate or galvanized steel and similar to mounting Signal Head hardware and brackets specified herein and shall provide tool free access to the interior.

Basis of Payment. This work will be paid for at the contract unit price EACH for ILLUMINATED SIGN, LED, which price shall be payment in full for furnishing and installing the light emitting diode illuminated sign complete.

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL POST AND PEDESTRIAN PUSHBUTTON POST

The furnishing and installation of this item shall meet the requirements of Sections 106.01, 875, 876, 1077.01 and 1077.02 of the Standard Specifications, except as follows:

All posts (steel), bases (cast iron), and related mounting hardware shall be hot-dipped galvanized in accordance with AASHTO M 111. A magnetic field tester may be utilized at any time to determine the thickness of galvanization. Average galvanization thickness shall be 2.0 oz. per square foot and minimum thickness shall be 1.8 oz. per square foot. The Contractor shall use a fabric post tightener to attach the post to the base. If the galvanization on the post is removed using a chain post tightener exposing bare metal, the post shall be rejected and replaced with a new post.

All iron and steel products, which are to be incorporated into work shall be domestically manufactured or produced and fabricated. The contractor shall obtain from the iron or steel producer and/or fabricator, in addition to the mill analysis, a certification that all iron or steel materials meet these domestic source requirements.

If the fabricator elects to cut and thread the post after the galvanization process, the bare metal shall immediately be cleaned to remove all cutting solvents and oils, then sprayed with two (2) coats of "Brite Zinc" galvanized compound manufactured by Brite Products, or an approved equal. Any scratches shall be repaired with "Brite Zinc". If the Department approves painting, powder coating by the manufacturer will be required over the galvanizing.

Bases shall be cast iron and octagonal in shape, approximately 15 inches (375 mm) high and 16 inches (400 mm) across the flat sides at the bottom. All bases shall be designed to accept four (4) 5/8" (15.6 mm) diameter anchor bolts evenly spaced in a 12-1/2" (312 mm) diameter circle.

Welded extensions onto the post shall not be permitted.

Posts are to erected plumb and no shims are allowed between the bottom of the base and the foundation.

When a new post is installed on an existing foundation, the foundation shall be plumed before the post is installed. It shall not be paid for separately but shall be included in cost for Traffic Signal Post or Pedestrian Push-Button Post.

Basis of Payment. This work will be paid for at the contract unit price EACH for TRAFFIC SIGNAL POST, GALVANIZED STEEL, of the length specified or PEDESTRIAN PUSH-BUTTON POST, GALVANIZED STEEL, TYPE I or TYPE II, which price shall be payment in full for furnishing and installing the traffic signal post, base, foundation for pedestrian post, nuts and washers, and pipe cap complete.

SPECIAL PROVISION
FOR
STEEL MAST ARM ASSEMBLY AND POLE AND/OR STEEL COMBINATION MAST ARM ASSEMBLY AND POLE

The furnishing and installation of a steel mast arm assembly and pole and/or steel combination mast arm assembly and pole shall meet the requirements of Section 106.01, 877 and 1077.03 of the Standard Specifications, Plans, and the Standard Drawings for Mast Arm Assembly and Pole, except as follows:

All iron and steel products, which are to be incorporated into work shall be domestically manufactured or produced and fabricated. The contractor shall obtain from the iron or steel producer and/or fabricator, in addition to the mill analysis, a certification that all iron or steel materials meet these domestic source requirements.

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.

The mast arm assembly and pole, and combination mast arm assembly 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 (130km/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 to "Standard Specification for Structural Supports for Highway Signs, Luminaire and Traffic Signals" 2001 4th edition.

Prior to the final acceptance of any steel mast arm assembly and pole and/or steel combination mast arm assembly and pole, the Contractor must furnish to the Engineer a certified, notarized mill analysis of the material used in the steel mast arm assembly and pole and/or steel combination mast arm assembly and pole complete including any other requirements in the Special Provision or Specifications.

The steel mast arm assembly and pole and/or steel combination mast arm assembly and pole furnished shall conform to the Standard Drawings for Mast Arm Assembly and Pole. The traffic signal mast arms shall be of one-piece construction, unless otherwise approved by the Engineer. All poles shall be galvanized.

All bolts on the mast arm assembly and pole and foundation to have a minimum exposure of at least one thread outside the nut when fully tightened.

The components of a steel mast arm assembly and pole and/or steel combination mast arm assembly and pole shall be assembled and erected in accordance with the details shown on the plans. The pole shall be erected vertically on a concrete foundation. The Contractor shall furnish

and install leveling and locking nuts and required washers for mounting and plumbing the pole on the anchor bolts. Prior to the approval of the installation, the Contractor shall brush or spray on two (2) coats of "Brite Zinc" galvanized compound to any scratched areas. The pole shall be grounded to a ground rod in accordance with the details shown on the plans.

The base of the mast arm pole shall be protected by a galvanized steel or extruded aluminum shroud for protection of the mast arm pole base plate similar to the dimensions detailed in the "District 1 Standard Traffic Signal Design Details." The shroud shall be of sufficient strength to deter pedestrian and vehicular damage. The shroud shall allow air to circulate throughout the mast arm but not allow manifestation of insects or other animals and such that it is not hazardous to probing fingers and feet. All mounting hardware shall be stainless steel. The Shroud shall not be paid for separately but shall be included in the cost of the mast arm assembly and pole.

The steel mast arm assembly and pole and/or steel combination mast arm assembly and pole shall be designed to support signal heads, signs, illuminated signs, luminaire, camera and other attachments as shown on the plans. Refer to the Standard Drawings for Mast Arm Assembly and Pole for design loadings and projected area with wind load based on an 80 mile per hour (130 km/h) wind velocity plus 30 percent gust factor.

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.

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, provided 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.

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 11X17 in. (275X425 mm) in size and of adequate quality for microfilming. All product data and shop drawings shall be submitted in electronic form on CD-ROM.

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.

In addition to the signal loading, the steel mast arm assembly and pole, and/or steel combination mast arm assembly and pole shall be structurally adequate to support a maximum of two (2) sign panels 30" x 72" (750 mm x 1,800 mm) in size mounted back to back, one LED street sign 96 5/8" x 22 5/16" with 92 pounds and one (1) sign panels 30" x 24" (750 mm x 600 mm) in size mounted from 3 feet (900 mm) from end of the mast arm. The actual size and number of the sign panel(s) to be furnished and installed and the details of mounting shall be as shown on the County Standard Drawing of "ILLUMINATED STREET NAME SIGN MOUNTING DETAIL".

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 Department. Signfix Aluminum Channel Framing System is currently recommended, but other brands of mounting hardware are acceptable based upon the Department's approval.

Basis of Payment. This work will be paid for at the contract unit price EACH for STEEL MAST ARM ASSEMBLY AND POLE, and/or STEEL COMBINATION MAST ARM ASSEMBLY AND POLE of the size(s) specified which price shall be payment in full for furnishing and installing the steel mast arm assembly and pole and/or steel combination mast arm assembly and pole, anchor bolts, nuts, washers, and connected to a ground rod as shown on the Standard, complete.

SPECIAL PROVISION
FOR
TRAFFIC ACTUATED CONTROLLER
TRAFFIC ACTUATED CONTROLLER WITH CABINET
INDUCTIVE LOOP DETECTOR

The furnishing and installation of a traffic actuated controller and an inductive loop detector shall meet the requirements of Section 857, 885, 1073, 1074.03 and 1079.01 of the Standard Specifications, except as revised with this Special Provision.

The new and/or temporary controller and all control equipment shall be of a manufacturer that is approved by this Department. The manufacturer shall have a representative located in the six (6) county Chicago areas. The Controller 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. 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 pre-emption events.

The contractor shall contact CCHD and coordinate to the installation of a standard voice-grade dial-up telephone line to the FULL-ACTUATED CONTROLLER AND CABINET, RAILROAD 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 traffic signal special provisions under Master Controller.

The malfunction monitor unit shall be an EDI Model MMU-16E or equivalent.

Contracts requiring new cabinets shall provide for rack mounted detector amplifier cards. Detector amplifiers shall be provided with LCD displays with loop frequency, inductance and change of inductance readings. When calling detectors are called for on the plans, the amplifier shall have the capability of providing vehicle calls to a particular phase when that phase is not in use.

Cabinets shall be designed for NEMA TS2 Type 1 operation. The cabinet shall provide a minimum of sixteen (16) pre-wired load bays for eight (8) phases of vehicular, four (4) phases of pedestrian and four (4) phases of overlap operation and pedestrian pushbutton isolation. Isolation cards will be required for all pedestrian pushbuttons.

- 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 Harness – Provide a TS2 Type 2 "A" wired harness in addition to the TS2 Type 1 harness.
- Surge Protection – Plug-in type EDCO SHA-1250 or Atlantic/Pacific approved equal.
- BIU – Containment screw required.
- Transfer Relays – Solid state or mechanical flash relays are acceptable.
- Switch Guards – All switches shall be guarded.

- The controller cabinet must have two (2) porcelain light fixtures with metal cage protection controlled by a separate toggle switch, and a thermostat at County cabinet only.
- Plan & Wiring Diagrams – 12" x 16" (305 mm x 406 mm) or 22" x 34" (560 mm x 860 mm) moisture sealed container attached to door.
- Detector Racks – Fully wired and labeled for four (4) channels of emergency vehicle pre-emption and sixteen channels (16) of vehicular operation.
- Field Wiring Labels – All field wiring shall be labeled.
- Field Wiring Termination – Approved channel lugs required.
- Power Panel – Provide a nonconductive shield.
- Circuit Breaker – The circuit breaker shall be sized for the proposed load but shall not be rated less than 30 amps.
- Police Door – Provide wiring and termination for plug in manual phase advance switch.
- Railroad Pre-Emption Test Switch – Eaton 8830K13 SHA 1250 or equivalent.
- Heating – One (1) 200 watt, thermostatically-controlled, Hoffman electric heater, or approved equivalent at IDOT intersection only.
- 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.
- 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.
- When "Full Actuated Controller and Cabinet, Type Super P" is used, the cabinet housing shall have the following nominal outside dimensions: a width of 59 in., a depth of 26 in., and a height of 57 in. The cabinet shall have a integrated Uninterruptible Power Supply compartment which holds the backup system and batteries. The battery portion of the cabinet shall be separated from the controller equipment portion of the cabinet by 1/8 inch thick aluminum 5052-H32. The bottom of the battery portion of the cabinet shall be 1/8 inch thick aluminum 5052-H-32. The battery cabinet door shall meet the same specifications as the controller portion except that the door hinge is 14 gage stainless steel with 0.12 stainless steel pin. The Battery compartment has three adjustable shelves, full width, 12" deep standard.,
- A GE KeySafe Slimline Pushbutton Lockbox or approved equal shall be provided in the cabinet.

Controller and cabinet interconnected with railroads shall be new and NEMA TS2 type 1. In addition to the aforementioned equipment specifications, the following shall apply to railroad interconnected equipment:

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 supplied and assembled only by an approved IDOT closed loop 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.

Basis of Payment. This work will be paid for at the contract unit price EACH for INDUCTIVE LOOP DETECTOR, and/or FULL-ACTUATED CONTROLLER AND CABINET or RAILROAD, FULL ACTUATED CONTROLLER AND CABINET (if required) of the type specified, which price shall be payment in full for furnishing and installing the inductive loop detector complete with all harnesses and connections for proper operation, and/or for furnishing and installing the controller complete, including malfunction monitor unit, load switches, flashers, flash transfer relays, etc. in a new cabinet or an existing cabinet as specified, with the necessary connections for proper operation.

SPECIAL PROVISION
FOR
MASTER CONTROLLER

The installation consist of a master controller shall meet Section 860 of the Standard Specifications except as revised with this Special Provision.

The Manufacturer of the master controller shall be as approved by the Agency that will maintain the closed loop system. Cook County currently approves only Econolite and Eagle NEMA TS2 Type 1 closed loop systems. If some other Agency will be maintaining the closed loop system the Contractor will contact that Agency to determine what Brand of Equipment is acceptable. The latest model and software version of master controller shall be supplied.

Functional requirements in addition to those in section 860, 863 and 1073.04 of the Standard Specification 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.

- 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 provided with a Siecor CAC 3000, or equivalent, 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. The CAC 3000 shall be equipped with a standard Three Electrode Heavy Duty Gas Tube Surge Arrestor.

- 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.

- Each master shall be delivered with up to three (3) complete sets of the latest edition of registered remote monitoring software with full manufacturer'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. One of these three sets will be provided to the Maintaining Agency's Signal Maintenance Contractor for his use in monitoring the system.

- The approved manufacturer of equipment shall loan CCHD one (1) master controller and two (2) 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 Master Controller shall provide a background timer which will prevent phases from being skipped during program changes.

- 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:

- As soon as practical or within one week after the contract has been awarded, the Contractor shall contact (via phone) the CCHD Design Engineer at (312) 603-1730 to request a phone installation.

- A follow-up fax transmittal to the CCHD Design Engineer at (312) 603-9956 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. 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); 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 phone line installation will then be requested from the County Central Services Office.

- The usual time frame for the activation of the phone line is 8 weeks after the CCHD Design Engineer 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 until a point in time that is 8 weeks prior to the anticipated completion of the traffic signal work. The contractor shall provide the CCHD Design Engineer with an expected installation date considering the 8 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 CCHD Central Services Office (i.e., this will be a CCHD phone number not a Contractor phone number).

Basis of Payment. The master controller shall be paid for at the contract unit price EACH for MASTER CONTROLLER, which price shall be payment in full for furnishing and installing the master controller complete with necessary connections for proper operation.

SPECIAL PROVISION
FOR
DETECTOR LOOP

This work shall consist of furnishing and installing detector loop in accordance with the requirements of Section 886 and 1079 of the Standard Specifications, except as follows:

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 CCHD Design Engineer at (312) 603-1730 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.
Each loop lead-in shall be placed in a separate conduit from edge of pavement to handhole. Loop detectors shall be installed according to the requirements of the "District 1 Standard Traffic Signal Design Details". Saw-cuts (homerun 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 plans. Spacing between the lead-ins (holes drilled in the pavement) shall not be less than one (1) foot (300 mm) and shall be located one (1) foot (300 mm) from the edge of pavement. Loop lead-in wires should be twisted to provide a minimum of five (5) turns per foot (fifteen [15] turns per meter) from the loop to the splice.

The cable splice connection of the detector loop and the lead-in cable to the controller shall conform to Section 873 of the Standard Specifications or the requirements set forth in the "District 1 Standard Traffic Signal Design Details".

Each loop detector lead-in wire shall be labeled in the handhole using a Panduit PLFIM water proof tag or approved equal 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 incidental to the price of the detector loop.

The detector loop cable insulation shall be labeled with the cable specifications.

Resistance to ground shall be a minimum of 100 megohms under any conditions of weather or moisture. Inductance shall be more than 50 and less than 700 microhenries. Quality readings shall be greater than 5.

Type 1:

- 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) x 4" (100 mm) long sawcut to mark the location of each loop lead-in.

- Loop sealant shall be a two-component thixotropic chemically cured polyurethane either Chemque Q-Seal 295, Perol Elastic Cement A/C Grade or an approved equal. The sealant shall be installed 1/8" (3 mm) below the pavement surface, if installed above the surface the overlap shall be removed immediately.

- Detector loop measurements shall include the sawcut and the length of the loop lead-in leading 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 incidental to the price of the detector loop. Unit duct, trench and backfill, and drilling of pavement or handholes shall be incidental to detector loop quantities.

- The corners of all loops shall be core drilled with a two (2) inch (50 mm) bit. All joints and cracks in the pavement that the loop crosses must be core drilled.

Preformed:

This work shall consist of furnishing and installing a rubberized heat resistant preformed traffic signal loop in accordance with the Standard Specifications, except for the following:

- Preformed detector loops shall be installed in new pavement constructed of portland cement concrete 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.

- 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.

- 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" (17.2 mm)outside diameter (minimum), 3/8" (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 similar 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. Six foot (1.8 m) round loop(s) may be substituted for six foot (1.8 m) by six foot (1.8 m) square loop(s) and shall be paid for as 24 feet (7.2 m) of detector loop.

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 will be paid for at the contract unit price per FOOT (METER) of DETECTOR LOOP, TYPE I or PREFORMED DETECTOR LOOP, as specified in the plans, which price shall be payment in full and for furnishing, installing and testing the Detector Loop and all related connections for proper operation.

SPECIAL PROVISION
FOR
VIDEO DETECTION SYSTEM FOR TEMPORARY TRAFFIC SIGNAL INSTALLATION

This specification sets forth the minimum requirements for a system that detects vehicles on a roadway using only video images of vehicle traffic. In addition to the requirements described below, the video detection system shall meet or exceed the specifications of the Autoscope or the Iteris Vantage Plus systems.

1) General
   a) System Hardware
      The video detection system shall consist of one to six video cameras, a video detection processor (VDP) capable of processing from one to six video sources, and a pointing device. A minimum of a nine (9) inch in-cabinet video monitor is required for view and/or programming detector zones.
   b) System Software
      The system shall include software that detects vehicles in multiple lanes using only the video image. Detection zones shall be defined using only an on board video menu and a pointing device to place the zones on a video image. Up to 144 detection zones shall be available.

2) Functional Capabilities
   a) The VDP shall process video from up to 6 video sources simultaneously. The sources can be video cameras or S-VHS video tape players. The video shall be input to the VDP in R5170 format and shall be digitized and analyzed in real time. A separate microprocessor for each video input shall be used.
   b) The VDP shall detect the presence of vehicles in up to 24 detection zones per camera. A detection zone shall be approximately the width and length of one car.
   c) Detection zones shall be programmed via an on board menu displayed on a video monitor and a pointing device connected to the VDP. The menu shall facilitate placement of the detection zones quickly and easily.
   d) The VDP shall store up to three different detection zone patterns. The VDP can switch to any one of the three different detection patterns within 1 second of user request via menu selection with the pointing device.
   e) The VDP shall detect vehicles in real time as they travel across each detection zone.
   f) The VDP shall have an RS232 port for communications with an external computer. The VDP R5232 port shall be multi-drop capable.
   g) The VDP shall accept new detection patterns from an external computer through the RS232 port when the external computer uses the correct communications protocol for downloading detection patterns.
   h) The VDP shall send its detection patterns to an external computer through the RS-232 port when requested when the external computer uses the correct communications protocol for uploading detection patterns.

3) Vehicle Detection
   a) Up to 144 detection zones shall be supported and each detection zone can be sized to suit the site and the desired vehicle detection region.

b) Detection zones shall be capable of being Or'ed or ANDed together to indicate vehicle presence on a single detector output channel.
c) Placement of detection zones shall be done by using only a pointing device, and a graphical interface built into the YDP and displayed on a video monitor, to draw the detection zones on the video image from each video camera.
d) Up to 3 detection zone patterns shall be saved for each camera within the VDP memory and this memory shall prevent loss during power outages.
e) The selection of the detection zone pattern for current use shall be done through a menu. It shall be possible to activate a detection zone pattern from VDP memory and have that detection zone pattern available within 1 second of activation.
f) When a vehicle is detected crossing a detection zone, the comers of the detection zone will flash on the video overlay display to confirm the detection of the vehicle.
g) Detection shall be at least 98% accurate in good weather conditions, with slight degradation possible under adverse weather conditions (e.g. rain, snow, or fog) which reduce visibility. Detection accuracy is dependent upon camera placement, camera quality and detection zone location, and these accuracy levels do not include allowances for occlusion or poor video due to camera location or quality. See section 5.12 for recommended camera placement.
h) The VDP shall provide 32 channels of detection through either a NEMA TS 1 port or a NEMA TS2 port.
i) The VDP shall provide dynamic zone reconfiguration (DZR). DZR enables normal operation of existing detection zones when one zone is being added or modified during the setup process. The VDP shall output a constant call on any detector channel corresponding to a zone being modified.
j) Detection zones shall be directional to reduce false detection from objects traveling in directions other than the desired direction of travel in the detection area.
k) Detection zone setup shall not require site specific information such as latitude and longitude to be entered into the system.
l) Detection zone setup shall not require temporal information such as date and time.
m) The VDP shall process the video input from each camera using a separate microprocessor at 30 frames per second.

n) The VDP shall output a constant call for each enabled detector output channel if a loss of video signal occurs. The VDP shall output a constant call during the background learning period.

Basis of Payment. Payment in full for furnishing, installing and setting up the video detection system, with necessary connections and programming for proper operation shall be included in the pay item for TEMPORARY TRAFFIC SIGNAL INSTALLATION.

SPECIAL PROVISION
FOR
PEDESTRIAN PUSH-BUTTON

The installation of a Pedestrian Pushbutton shall meet Section 888 and 1074.02 of the Specifications except as revised with this Special Provision.

This item shall consist of furnishing and installing a push-button assembly which shall be ADA compliant, highly vandal resistant, be pressure activated with minimal movement and can not be stuck in a closed or constant call position. A red latching LED and audible tone shall be provided for confirmation of an actuation call.

The normal state of the LED shall be off. When the push button is pressure activated, the LED shall be lighted and remain on until the beginning of the walk phase. The latching relay shall be mounted in the signal cabinet, controlling two pedestrian phases.

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.

The actuator shall be stainless steel with a solid state electric PIEZO switch rated for a minimum of 20 million cycles with no moving plunger or moving electrical contacts. The operating voltage shall be 12-24V AC/DC.

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).

Pedestrian push buttons and stations shall be mounted directly to poles and/or posts 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

Basis of Payment. This work shall be paid for at the contract unit price EACH for PEDESTRIAN PUSH-BUTTON, which price shall be payment in full for furnishing and installing the pushbutton assembly complete.

SPECIAL PROVISION
FOR
CONDUIT

The installation of a conduit shall meet the requirements of Sections 810, 811 of the Standard Specifications, except as revised with this Special Provision.

Pavement, driveways, and curbs shall not be removed to install electrical conduits.

All conduit installed underground shall have a minimum depth of two feet six inches (2'-6" [760 mm]) except under railroad tracks where the conduit shall be a minimum of five feet (5' [1.52 m]) as measured to the outside diameter of the conduit on the top side.

All conduit splices shall be solid threaded couplings. Conduit terminating in junction and pull boxes shall be terminated with hubs, integral box hubs, or integral box bosses.

Directional boring or plowing will be allowed in place of trenched and backfilled or pushed conduit, but no additional compensation will be allowed.

All conduit attached to a structure shall have a minimum of one (1) expansion joint placed within the length of the attached conduit. At each end of the structure the Contractor shall install a weatherproof galvanized cast iron box with a minimum size of 8" (200 mm) x 8"(200 mm) x 6" (150 mm) deep. The installation of these two (2) boxes and any required expansion joints shall be considered incidental to the unit price for conduit attached to structure.

Basis of Payment. This work will be paid for at the contract unit price per FOOT (METER) for UNDERGROUND CONDUIT or CONDUIT ATTACHED TO STRUCTURE, of the type and size specified, which price shall be payment in full for furnishing and installing the conduit and fittings complete. Trench and Backfill will be paid for separately.

SPECIAL PROVISION
FOR
COILABLE NON-METALLIC CONDUIT

This work shall consist of furnishing and installing empty Coilable Non-Metallic Conduit (CNC) in trench of the type and size specified. The installation of CNC shall meet all applicable requirements of the Standard Specifications of Section 810 and 811. All installations of CNC shall be incidental to the contract and not paid for separately. polyethylene duct shall be used for all detector loop raceways to handholes. All duct shall be placed a minimum depth of 30 inches (750 mm) or as shown on the contract plans or standard details.

The conduit shall be a polyethylene duct which is intended for underground use and which can be manufactured and coiled or reeled in continuous transportable lengths and uncoiled for further processing and/or installation without adversely affecting its properties of performance. The conduit and its manufacture shall conform to the standards of NEMA Publication TC7, ASTM Standard Specifications D3485 and NEC Article 353.

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

Material. The conduit shall be manufactured from high density polyethylene complying with ASTM D1248, Type III, Class C and the requirements listed in Table 2-1 of NEMA TC7. Submittal information shall demonstrate compliance with the details of these requirements.

Construction. Conduit dimensions shall conform to the standards listed in Table 2-2 of NEMA TC7. Submittal information shall demonstrate compliance with these requirements.

As specified in NEMA TC7, the conduit shall be clearly and durably marked at least every 10 feet (3 meters) with the material designation (HDPE for high density polyethylene), nominal size of the conduit and the name and/or trademark of the manufacturer.

Freeze-up Test:. A ten foot length of the conduit bent into an upright "U" shape shall be filled with water and then placed in a low temperature cabinet and maintained at -20 degrees C for 24 hours. The conduit shall not crack or burst during the test.

Compression Test. The test shall be conducted on a six inch (150 mm) sample of the conduit. Samples are placed between six inch (150 mm) plates and compressed at the rate of one-half inch (12.5 mm) per minute until the distance between the plates is reduced by 50%, recording the load required to compress the conduit. The samples are then removed and allowed to stand for exactly 5 minutes. The load required to compress the sample shall be equal to or greater than that listed below and the conduit shall have returned to nor less than 85% of its original diameter at the end of the 5 minutes.

Nominal Size		Load
¾ inch.	20 mm	122 lbs.
1 inch.	25 mm	167 lbs.
1 ¼ inch.	30 mm	243 lbs.
1 ½ inch.	40 mm	297 lbs.
2 inch.	50 mm	387 lbs.

Tests. All of the tests referred to above and the applicable tests in the cited ASTM Standards shall be performed on the conduit at the manufacturer's plant and certified copies of the reports of the results of these tests shall be submitted to the Engineer prior to the installation of the CNC.

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

SPECIAL PROVISION
FOR
ELECTRIC CABLE

The installation of an electric cable shall meet the requirements of Section 873, 1088.01 and 1076.04 of the Standard Specifications and District One Standard Traffic Signal Design Details with the addition as the following:

The jacket for electric cable in this contract shall be of the polyvinyl chloride type meeting the requirements of IMSA 19-1. (Traffic signal cable shall be solid copper No. 14 unless otherwise specified in the plans or these Special Provisions). No other type of jacket will be allowed, except as follows:

The service cable may have a XLP jacket. Service cable may be single or multiple conductor cable.

Communications and lead-in cable shall have a gray or chrome jacket.

Electric cable sized No. 12 AWG and smaller shall be solid.

The length of cable slack shall be in accordance with District One Standard Traffic Signal Design Details.

The cable splice connection of the detector loop and the lead-in cable to the controller shall conform to Section 873 of the Standard Specifications or to the requirements set forth in the "District 1 Standard Traffic Signal Design Details ".

Heat shrink splices shall be used according to "District 1 Standard Traffic Signal Design Details".

Basis of Payment. This work will be paid for at the contract unit price per FOOT (METER) for ELECTRIC CABLE of the type, size and number of conductors as specified., which price shall be payment in full for furnishing the material and making all electrical connections and installing the cable complete, measured as specified.

SPECIAL PROVISION
FOR
RAILROAD INTERCONNECT CABLE

Railroad Interconnect Cable: This work shall consist of furnishing and installing an electric cable of the type, size, and number of conductors specified. The cable shall meet the requirements of Section 873 of the "Standard Specifications," except for the following additions:

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

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.

SPECIAL PROVISION
FOR
FIBER OPTIC CABLE

The installation of a fiber optic electric cable and tracer cable shall meet the requirements of Section 817, 871 and 872 of the Standard Specifications, except as follows:

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 equal. The fiber optic cable shall provide six (6) 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 (6) multimode fibers from each cable shall be terminated with approved mechanical connectors in 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 feet (4 m) of extra slack cable shall be provided for the controller cabinet. The controller cabinet extra slack cable shall be stored as directed by the Engineer.

Add the following to Article 817.03 of the Standard Specifications:

In order to trace the fiber optic cable after installation, an XLP black insulated copper cable No. 14 AWG shall be pulled in the same conduit as the fiber optic cable. 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. The tracer cable will be allowed to be spliced at the handholes only. All tracer cable splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable splice shall use a Western Union Splice soldered with resin core flux and shall be soldered using a soldering iron. All exposed surfaces of the solder shall be smooth.. Blow torches or other devices which oxidize copper cable shall not be allowed for soldering operations. The splice shall be covered with a black shrink tube meeting UL 224 guidelines, Type V and rated 600v, minimum length 4" (100 mm) and with a minimum 1" (25 mm) coverage over the XLP insulation, underwater grade.

Basis of Payment. This work will be paid for at the contract unit price per FOOT (METER) for FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125 MM12F SM12F , which price shall be payment in full for furnishing the material (including connectors) and distribution enclosure and making all connections, splices and installing the cable complete, measured as specified. The tracer cable shall be paid for as ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C per FOOT (METER), which price shall include all associated labor and material for installation.

SPECIAL PROVISION
FOR
SYSTEM GROUND AND GROUNDING CABLE

This specification revises requirements of 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 National Electrical Code. See IDOT District 1 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 where measured resistance exceeds 25 ohms. Ground rods are included in the applicable foundation or service installation pay item and will not be paid for separately. All steel ground rods shall be copper clad, a minimum of 10' (3.0 m), and ¾" (20mm) in diameter.

Testing shall be according to Section 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 Section 801.4 of the Standard Specifications.
   1) Equipment grounding conductors shall be XLP insulated 600V No.6 gauge copper, unless otherwise noted on the plans, and 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 grounded connector (Burndy type KC/K2C, as applicable or approved equal), to all traffic signal mast arm poles, traffic signal posts, pedestrian posts, pushbutton 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 connected using a sized compression type copper sleeve, sealant tape and heat shrinkable cap. A listed electrical joint compound shall be applied to all conductor terminations, connector threads and contact points. Conduit grounding bushings shall be installed at all conduit terminations. Bonding to existing handhole frames and covers shall be paid for separately.
   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 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 CABLE

The cable shall meet the requirements of Section 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.

Basis of Payment. This work will be paid for at the contract unit price per FOOT (METER) for ELECTRIC CABLE IN CONDUIT, GROUNDING NO. 6, 1C, which price shall be payment in full for furnishing labor and material including grounding clamps, cable, splicing, exothermic welds, grounding connectors conduit grounding bushings, and hardware. All ground rods shall be incidental to the cost of associated items for Concrete Foundations and Service Installation.

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.

SPECIAL PROVISION
FOR
SERVICE INSTALLATION, POLE MOUNTED

This specification revises requirements of section 805 of the Standard Specifications to read:

All installations shall meet the requirements of the details in the "District 1 Standard Traffic Signal Design Details" and applicable portions of the Specifications. The electrical service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

Materials.

1) 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.

2) 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.

3) 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.

4) 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, otherwise noted on the plans, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.

5) 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.

6) 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.

7) The Contractor shall notify the Commonwealth Edison 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 Commonwealth Edison Marketing Representative has received service charge payments from the Contractor. Prior to contacting the Commonwealth Edison marketing representative for service connection, the service installation, controller cabinet and cable must be installed for inspection by Commonwealth Edison.

8) Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10' (3.0 meters) in length, and 3/4" (20 mm) 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:

1) 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.

2) 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.

The Contractor must request in writing for service and/or service modification within ten (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 County Design Engineer. The loading form to be sent to the utility company shall be furnished by the County Design Engineer. The service agreement and sketch shall be submitted for signature to the County Design Engineer.

The Commonwealth Edison contact phone number is 866-639-3532

Basis of Payment. This work will be paid for at the contract unit price EACH for SERVICE INSTALLATION, POLE MOUNTED, which shall be payment in full for furnishing and installing the service installation complete. SERVICE INSTALLATION, POLE MOUNTED shall include the 3/4" (20 mm) grounding conduit, ground rod, and pole mount assembly. Any charges by the utility company to provide electrical services to the service installation will be paid for in accordance with Article 109.05 of the Standard Specifications.

SPECIAL PROVISION
FOR
SERVICE INSTALLATION, GROUND MOUNTED

This specification revises requirements of section 805 of the Standard Specifications to read:

All installations shall meet the requirements of the details in the "District 1 Standard Traffic Signal Design Details" and applicable portions of the Specifications. The electrical service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

Materials.

1) 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.

2) 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 0.075-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) 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.

4) 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, otherwise noted on the plans, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V.

5) 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.

6) 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.

7) The Contractor shall notify the Commonwealth Edison 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 Commonwealth Edison Marketing Representative has received service charge payments from the Contractor. Prior to contacting the Commonwealth Edison marketing representative for service connection, the service installation controller cabinet and cable must be installed for inspection by Commonwealth Edison.

8) Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10' (3.0 meters) in length, and 3/4" (20 mm) 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.

1) 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.

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

The Contractor must request in writing for service and/or service modification within ten (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 County Design Engineer. The loading form to be sent to the utility company shall be furnished by the County Design Engineer. The service agreement and sketch shall be submitted for signature to the County Design Engineer.

The Contractor shall make connections to the line side of the circuit breaker and install the remainder of the electric cable in the conduit to the Commonwealth Edison transformer pad.

The Commonwealth Edison contact phone number is 866-639-3532

Basis of Payment. This work will be paid for at the contract unit price EACH for SERVICE INSTALLATION, GROUND MOUNTED, which price shall be payment in full-for furnishing and installing the service installation complete. The Type A concrete foundation which includes the ground rod shall be paid for separately. Any charges by the utility company to provide electrical services to the service installation will be paid for in accordance with Article 109.05 of the Standard Specifications.

SPECIAL PROVISION
FOR
ELECTRIC SERVICE

The Commonwealth Edison Company or Division of Commonwealth Edison Company shall provide and install all necessary cable, switchgear and transformers on the power pole to be used for the service to the control cabinet as called for on the plans; provide service drops, install rigid steel or fiber portion of the pole riser (rigid steel or fiber conduit and fittings to be furnished by the Contractor); connect service drops to cable brought to service pole by Contractor. Where transformer manholes are used, electrical service shall be as called for on the plans.

The Cook County Highway Department has contacted the power company and secured the location and cost of electrical facilities. It will be the responsibility of the Electrical Contractor to contact the power company, request and consummate the agreement for these facilities as described herein and at locations as shown on the plans.

Basis of Payment. This work will be paid for at the LUMP SUM price for ELECTRIC SERVICE which work shall include all labor, materials, equipment, tools and incidentals necessary to complete the work as specified herein and as shown on the plans. The Commonwealth Edison Company or Division thereof shall bill the Electrical Contractor direct, for all costs incurred as a result of work done under this Special Provision has been included in the Schedule of Prices.

The above figure includes the standard five (5) percent handling charge for the first $10,000.00 and one (1) percent (%) for any amount greater than $10,000.00.

SPECIAL PROVISION
FOR
HANDHOLE

The installation of a handhole shall meet the requirements of Section 814 of the Standard Specifications, with the addition as the following:

All handholes shall be concrete poured in place against undisturbed earth. No pre-cast concrete handholes will be accepted.

The handholes shall have an inside dimension of 21-1/2" (549 mm) minimum. Frames and lid openings shall match this dimension.

The cover of the handhole shall be labeled "TRAFFIC SIGNALS" with legible raised letters.

All conduits will enter the handhole at a depth of 30" (760 mm) except for the conduits between the curb and handhole for detector loops when the handhole is less than five (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.

For grounding purposes the handhole frame shall have provisions for a 7/16" (15.875 mm) 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 frame and cover.

The minimum wall thickness for heavy duty hand holes shall be 12 inches (300 mm).

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 (12.7mm) 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.

The French drain shall be constructed of crushed stone or gravel, Gradation CA 5 or CA 7, and according to Section 601 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price EACH for HANDHOLE, HEAVY-DUTY HANDHOLE, or DOUBLE HANDHOLE, which price shall be payment in full for all necessary excavating, backfilling, disposal of unsuitable materials, and furnishing all materials within the limits of the handhole.

SPECIAL PROVISION
FOR
REBUILD EXISTING HANDHOLE
REBUILD EXISTING HEAVY DUTY HANDHOLE
REBUILD EXISTING DOUBLE HANDHOLE

This item shall consist of rebuilding a handhole, heavy duty handhole and/or double handhole at location(s) as shown on the plans or as directed by the Engineer. The work shall consist of removing the frame and cover and the walls of the handhole to a depth of thirteen (13) inches (330 mm) below finished grade.

Upon completion of the above work, for handhole and heavy duty handhole four (4) holes, for the double handhole six (6) holes, four (4) inches (100 mm) in depth and one half (1/2) inch (15 mm) in diameter, shall be drilled into the remaining concrete, for handhole and heavy duty handhole one (1) hole centered on each wall and for the double handhole one (1) hole centered on each side wall and two (2) holes evenly spaced on the front and back walls. Number 3 steel dowels eight (8) inches (200 mm) in length shall be furnished and installed in the drilled holes with masonry epoxy.

All concrete debris shall be removed from the right-of-way to a location approved by the Engineer.

The area adjacent to each wall of the handhole shall be excavated to allow forming. All steel hooks (galvanized), frame and cover and concrete shall be provided to construct a rebuilt handhole, heavy duty handhole or double handhole according to applicable portions of the Standard Specifications. If the Contractor damages the existing frame and cover, the Contractor shall be responsible for replacing the frame and cover at no cost to the County.

Basis of Payment. This work will be paid for at the contract unit price EACH for REBUILD EXISTING HANDHOLE, REBUILD EXISTING HEAVY DUTY HANDHOLE, REBUILD EXISTING DOUBLE HANDHOLE, REBUILD EXISTING HANDHOLE TO HEAVY DUTY HANDHOLE which price shall be payment in full for all labor, all materials, and equipment necessary to complete the work described above and as indicated in the Plans.

SPECIAL PROVISION
FOR
CONCRETE FOUNDATION

The installation of a concrete foundation shall meet the requirements of Section 106.01, 878 and 1006.09 of the Standard Specifications, the Standard Drawing for Concrete Foundations and District One Standard Traffic Signal Design Details with the addition as the following:

All anchor bolts shall be according to Section 1006.09, except all anchor bolts shall be hot dipped galvanized a minimum of 12 in. (300 mm) from the threaded end.

All iron and steel products, which are to be incorporated into work shall be domestically manufactured or produced and fabricated. The contractor shall obtain from the iron or steel producer and/or fabricator, in addition to the mill analysis, a certification that all iron or steel materials meet these domestic source requirements.

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 approval as to the depth of the foundation.

Basis of Payment: This work will be paid for at the contract unit price per FOOT (METER) of depth for:

CONCRETE FOUNDATION, TYPE A
CONCRETE FOUNDATION, TYPE C
CONCRETE FOUNDATION, TYPE D
CONCRETE FOUNDATION, TYPE E - 30" (750 mm) Dia.
CONCRETE FOUNDATION, TYPE E - 36" (900 mm) Dia.
CONCRETE FOUNDATION, TYPE E - 42" (900 mm) Dia.

which price shall be payment in full for all necessary excavating or drilling, back filling, disposal of unsuitable material, form work, ground rods and furnishing all materials within the limits of the foundation.

SPECIAL PROVISION
FOR
MODIFY EXISTING TYPE "D" FOUNDATION

The installation of a concrete foundation shall meet the requirements of District One Standard Traffic Signal Design Details with the addition as the following:

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. The disposal of the concrete debris outside of the right-of-way shall be included in this item. 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.

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 controller cabinet. The contractor shall follow the recommendations of the manufacturer, subject to approval of the Engineer, in forming and constructing the foundation.

Provide a 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) on the side of the access door to the controller to facilitate servicing the controller.

Anchor bolts shall be new and shall meet all the requirements of Section 1006.09 and 1077.01 of the Standard Specifications.

All anchor bolts shall be hot dipped galvanized the full length of the anchor bolt including the hook.

Basis of Payment. This work shall be paid for at the contract unit price EACH for MODIFY EXISTING TYPE "D" FOUNDATION, 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. The removal of the existing traffic signal controller shall be incidental to this pay item, as well as the pulling and reinstalling of the existing cable from conduit.

SPECIAL PROVISION
FOR
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT

The removal of existing traffic signal equipment shall meet the requirements of Section 895.05 of the Standard Specifications, except as follows:

This work shall consist of removing the existing traffic signal equipment at an intersection as listed and as shown on the plans.

All equipment to be returned to an Agency shall be delivered by the Contractor to the Agency's Traffic Signal Maintenance Contractor's main facility. The Contractor shall contact the Agency'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 Agency, including model and serial numbers, where applicable. A list of equipment shall be signed by the Agency's Electrical Maintenance Contractor and fax to the County Engineer at (312) 603-9956. 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 Agency'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 Agency's Electrical Maintenance Contractor indicating the items have been returned in good condition.

The traffic signal equipment which is to be removed and is to become the property of the Contractor shall be disposed of by them outside the right-of-way at their expense.

All equipment is to be disassembled so as to make for easy loading and storage into Agency stock as per the Engineers instructions.

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.

Basis of Payment. This work will be paid for at the contract unit price EACH for REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT per intersection which price shall be payment in full for removing the equipment, and storing and/or disposing of it as required. The salvage value of the equipment retained by the Contractor shall be reflected in this contract unit price.

SPECIAL PROVISION
FOR
TEMPORARY TRAFFIC SIGNAL INSTALLATION

This item shall consist of furnishing, installing, maintaining and removing a temporary traffic signal installation at an existing intersection as shown on the plans and as described herein 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. The energy charges for the operation of the traffic signal installation shall be paid for by others if the installation is replacing an existing signal. Otherwise charges shall be paid for under Section 109.05 of the Road Specifications.

Only an approved Equipment Vendor will be allowed to assemble the temporary traffic signal cabinet. Only controllers supplied by an approved Equipment Vendor will be approved for use on temporary traffic signals. Only an approved Closed Loop Equipment Vendor shall assemble and test a temporary railroad interconnected traffic signal cabinet. (Refer to Traffic Actuated Controller Specification). A representative of the approved control Equipment Vendor shall be present at the temporary traffic signal turn-on inspection.

All "railroad interconnected" temporary traffic signal controllers and cabinets shall be newly constructed. Only controllers and cabinets supplied by one of the IDOT District 1 approved closed loop Equipment Manufacturers will be allowed.

The installation of a temporary traffic signal installation shall meet the requirements of Section 890 and 801.11 of the Standard Specifications and the Standard Drawings, except as follows:

Equipment. The Contractor shall provide the following:

- All control equipment for the temporary traffic signals shall be furnished by the Contractor unless otherwise stated in the plans. On projects with multiple temporary traffic signal installations, all controllers shall be of the same manufacturer brand and model number with current software installed.

- Only controllers supplied by one of the Cook County Highway Department approved closed loop equipment manufacturers will be approved for use at temporary signal locations. Controllers used for temporary traffic signals shall be fully actuated NEMA microprocessor based with RS232 data entry ports compatible with the latest revision of monitoring software approved CCHD or 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 temporary traffic signal controllers shall meet or exceed the requirements of section 857 with regards to internal time coordination and preemption. The controller settings shall be set in the field as directed by the Engineer.

- 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. Only controllers and cabinet supplied by one of the IDOT district 1 approved closed loop equipment manufactures will be allowed.

- 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) 100 mm (4 inch) diameter holes to run the electric cables through. The 100 mm (4 inch) diameter holes shall have a bushing installed to protect the electric cables and shall be sealed after the electric cables are installed.

- Grounding shall be provided for the temporary traffic signal cabinet meeting or exceeding the applicable portions of the National Electrical Code, Section 807 of the Standard Specifications and shall meet the requirements of the District 1 and Cook County Traffic Signal Specifications for "Grounding of Traffic Signal Systems".

- All traffic signal sections and pedestrian signal sections shall be of the 12" (300 mm) type. Traffic signal section shall be LED with expandable view, unless otherwise approval 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 cable slack to relocate heads to any position on the span wire or at locations illustrated on the plans for construction staging. The temporary traffic signal shall remain in operation during all signal head relocations. Each temporary traffic signal head shall have its own cable from the controller cabinet to the signal head. Signal heads shall be mounted no less than 17-ft and no more than 25-ft above the crown of the roadway. Signal heads with backplates shall be measured from the bottom of the backplate for minimum clearance and from the top signal section for maximum clearance.

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 materials, labor and testing to provide the completely operational closed loop system as shown on the plans. The radio interconnects 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: Encon Model 5100 and Intuicom Communicator II.

- All existing street name and intersection regulatory signs shall be removed from existing poles and relocated and securely fastened to the signal span wire. The signs shall be relocated to the new and/ or existing mast arm poles and posts 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 lighted signs are existing they shall be taken down and stored by the Contractor and reflective street name signs shall be installed on the temporary signal. The existing lighted sign shall be installed at the updated intersection as part of this pay item.

- 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 County. All labor and material required to install and maintain the emergency vehicle pre-emption installation shall be included in the item Temporary Traffic Signal Installation.

- All temporary traffic signal installations shall have vehicle 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. Video vehicle detection system shall be approved by CCHD prior to Contractor furnishing and installing. The Contractor shall install, wire, and adjust the alignment of the video vehicle detection system in accordance to the manufacturer's recommendations and requirements. The Contractor shall be responsible for adjusting the alignment of the video vehicle detection system for all construction staging changes and for maintaining proper alignment throughout the project. A representative of the approved control equipment vendor and the video detection vendor shall be present and assist the contractor in setting up and maintaining the video vehicle detection system. An in-cabinet video monitor shall be provided with all video vehicle detection systems and shall be included in the item Temporary Traffic Signal Installation.

- Uninterruptible Power Supply. When called for in the plans, 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.

All labor and material required to comply with these requirements shall be considered incidental to the bid price of temporary traffic signal installation.

Maintenance Procedures. The Contractor shall perform the following maintenance procedures for each temporary installation designated to remain in operation during construction.

The Contractor Shall:

- Have on staff electricians with IMSA Level II certification to provide signal maintenance.

- Patrol and inspect each installation every two (2) weeks for proper alignment of signal heads, light detectors, lamp failures, and general operation of the traffic signal.

- Check all controllers every two (2) weeks, which will include visually inspecting all timing intervals, relays, detectors, and pre-emption equipment to insure that they are functioning properly. This item includes, as routine maintenance, all portions of emergency vehicle pre-emption equipment.

- Provide immediate corrective action to replace burned out lamps or damaged sockets. When lamps are replaced, the reflector and lens shall be cleaned. All replacement lamps shall meet the approval of the Engineer. The Contractor shall repair or replace all defective equipment from any cause whatsoever.

- Maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs.

- 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. A near right signal must also be maintained. When repairs at a signalized intersection require that the controller be disconnected and power is available, the Contractor shall place the traffic signal installation on flashing operation. The signals shall flash RED for all directions unless a different indication has been specified by the Engineer.

- The Contractor is required to place stop signs (R1-1-36) at each approach to the intersection as a temporary means of regulating traffic. At approaches, where a Yellow Flashing indication is necessary, as directed by the Engineer, stop signs will not be required. The Contractor shall furnish and equip all their vehicles assigned to the maintenance of traffic signal installations with a sufficient number of Stop Signs as specified herein. The Contractor shall maintain sufficient number of spare Stop Signs in stock at all times to replace Stop Signs which may be damaged or stolen.

- Replace defective or damaged equipment. If the proper sequence with full detection cannot be obtained immediately, a controller which will provide the proper sequence and full detection shall be installed within twelve (12) hours of removal of the original controller.

- The Contractor shall be required to maintain the existing type of equipment and sequence of operations during the period of time that the original control equipment is being overhauled

- Provide the Engineer with the names, addresses, and telephone numbers of two (2) persons qualified and assigned to the maintenance of the traffic signal installation. These people must be made available 24 hours per day, each and every day of the year for emergency calls by the Engineer.

- Respond to all emergency calls from the Department or municipality 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 State or County. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the temporary 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 or the County's Electrical Maintenance Contractor perform the maintenance work required. The State's or 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.

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 any physical work begins on the contract or any portion thereof until which time the temporary signals are functioning and the existing signals are removed. In addition, seven 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 Design Engineer at (312) 603-1730 for an inspection of the Installation(s). The Design Engineer shall establish a date and time of inspection and at this time shall check the installation to determine if any corrective work should be done by the State's or County's Electrical Maintenance Contractor or the Municipalities Contractor prior to the Contractor taking over maintenance of the installation. The Resident Engineer, Engineer, and the Contractor shall mutually agree on the date of maintenance transfer to the Contractor for this section.

Temporary Traffic Signals for bridge projects shall follow the State Standards, Standard Specifications, Cook County 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 (5.5 m), 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 as shown in the plans or as directed by the Engineer. The Controller cabinet shall be mounted to the wood pole or as directed by the Engineer. Video vehicle detection may be used in place of the detector loops as approved by the Engineer.

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 video detection 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). The signal system shall be designed to continuously operate over an ambient temperature range between -30 °F (-34 °C) and 120 °F (48 °C). 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 will 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, which price shall include all costs for the modifications required for traffic staging, changes in signal phasing as required in the Contract plans, video vehicle detection system, any maintenance or adjustment to the video vehicle detection system, all material required, the installation and complete removal of the temporary traffic signal. Sixty percent of the bid price will be paid following approval of each installation. The remaining 40 percent will be paid following removal of each installation.

SPECIAL PROVISION
FOR
MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION

This item shall consist of maintaining the existing traffic signal installation at an intersection as shown on the plans and as described herein. Full maintenance responsibility shall start as soon as the Contractor begins any physical work on the contract or any portion thereof. The energy charges for the operation of the traffic signal installation shall be paid for by others. The maintenance of an existing traffic signal installation shall meet the requirements of Section 801.11 and 850 of the Standard Specifications except as follows:

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, communications cables and conduit 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 and County.

Seven 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 Cook County Design Engineer at (312) 603-1730 for an inspection of the installation(s). The Design Engineer shall establish a date and time of inspection and at this time shall check the installation to determine if any corrective work should be done by the State, the County, or the Municipalities Electrical Maintenance Contractor prior to the Contractor taking over the maintenance of the installation(s). The Resident Engineer, the Design Engineer, and the State, County, or Municipality Maintenance Contractor and the Contractor shall mutually agree on the date of maintenance transfer to the Contractor for this contract.

Maintenance Procedures The Contractor shall perform the following maintenance procedures for each existing installation designated to remain in operation during construction:

- Have on staff electricians with IMSA Level II certification to provide signal maintenance.
- Patrol and inspect each installation every two (2) weeks for proper alignment of signal heads, light detectors, lamp failures, and general operation of the traffic signal.
- Check all controllers every two (2) weeks, which will include visually inspecting all timing intervals, relays, detectors, and pre-emption equipment to insure that they are functioning properly. This item includes, as routine maintenance, all portions of emergency vehicle pre-emption equipment.
- Provide immediate corrective action to replace burned out lamps or damaged sockets. When lamps are replaced, the reflector and lens shall be cleaned. All replacement lamps shall meet the approval of the Engineer. The Contractor shall repair or replace all defective equipment from any cause whatsoever.
- Maintain in stock at all times a sufficient amount of materials and equipment to provide effective temporary and permanent repairs.

- 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. A near right signal must also be maintained. 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 is required to place stop signs (R1-1-36) at each approach to the intersection as a temporary means of regulating traffic. At approaches, where a Yellow Flashing indication is necessary, as directed by the Engineer, stop signs will not be required. When the signals operate in flash, the Contractor shall furnish and equip all his vehicles assigned to the maintenance of traffic signal installations with a sufficient number of Stop Signs as specified herein. The Contractor shall maintain sufficient number of spare Stop Signs in stock at all times to replace Stop Signs which may be damaged or stolen.

- Replace defective or damaged equipment. If the proper sequence with full detection cannot be obtained immediately, a controller which will provide the proper sequence and full detection shall be installed within twelve (12) hours of removal of the original controller.

- The Contractor shall be required to maintain the existing type of equipment and sequence of operations during the period of time that the original control equipment is being overhauled

- Provide the Engineer with the names, addresses, and telephone numbers of two (2) persons qualified and assigned to the maintenance of the traffic signal installation. These people must be made available 24 hours per day, each and every day of the year for emergency calls by the Engineer.

- 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 State or County. The Contractor may institute action to recover damages from a responsible third party. If at any time the Contractor fails to perform all work as specified herein to keep the traffic signal installation in proper operating condition or if the Engineer cannot contact the Contractor's designated personnel, the Engineer shall have the State's or the County's Electrical Maintenance Contractor perform the maintenance work required. The State's or 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.

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.

Basis of Payment. This work will be paid for at the contract unit price EACH for MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION, which price shall be payment in full for all materials, equipment, and labor necessary to maintain the existing traffic signals as shown on the plans. Each intersection shall be paid for separately. Following the completion of the traffic signal maintenance transfer

to the Contractor, 30 percent of the bid price will be paid. Following the traffic signal maintenance transfer to County, state and/or local agency, 30 percent of the bid price will be paid. The remaining 40 percent will be paid when all items on the punch list are done to the satisfaction of the engineer.

SPECIAL PROVISION
FOR
EMERGENCY VEHICLE PRIORITY SYSTEM

The installation of an emergency vehicle priority system shall meet Sections 887 and 1072 of the Standard Specifications, except as revised with this Special Provision.

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. A letter from the Agency is to be included with equipment submittals indication what brand of equipment is acceptable to the Agency.

All new installations shall be equipped with confirmation beacons as shown on the "District 1 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 2000 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 4D-11 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 County.

This item shall include any required modifications to an existing Traffic Signal Controller as a result of the addition of the Emergency Vehicle Priority System.

The pre-emption detector amplifier shall be paid for on a basis of one (1) each per intersection controller and shall provide operation for all movements required in the pre-emption phase sequence.

Basis of Payment. This work will be paid for at the Contract unit price EACH for LIGHT TRANSMITTER, LIGHT DETECTOR, or LIGHT DETECTOR AMPLIFIER which price shall be payment in full for furnishing and installing the light transmitter, light detector, or light detector amplifier complete, with necessary connections for proper operation. The furnishing and installing of a confirmation beacon shall be included in the cost of the LIGHT DETECTOR.

The lead-in cable will be paid for at the contract unit price per FOOT (METER) for ELECTRIC CABLE IN CONDUIT, NO. 20, 3/C, TWISTED, SHIELDED or ELECTRIC CABLE AERIAL SUSPENDED, NO. 20, 3/C, TWISTED, SHIELDED which price shall be payment in full for furnishing and installing the lead-in cable and making all electrical connections. The electric cable shall be shielded and have three (3) stranded conductors colored blue, orange, and yellow with a stranded tinned copper drain wire. The cable shall meet the requirements of the manufacturer of the Emergency Vehicle Priority System Equipment.

SPECIAL PROVISION
FOR
RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT

This item shall consist of relocating the existing emergency vehicle priority system light detector from an existing traffic signal mast arm or post to the new traffic signal mast arm or post as indicated in the plans or as directed by the Engineer.

The work shall include disconnecting light detector and reconnecting it to the new cable.

The emergency vehicle system is not to be inoperative for more than forty-eight (48) hours and the Contractor must notify the municipality or Fire Protection District seventy-two (72) hours prior to the disconnection of the equipment.

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 be payment in full for disconnecting the existing light detector, relocating and connecting the light detector to the new cable complete and operating to the satisfaction of the Engineer. The relocating and connecting the existing confirmation beacon shall be considered incidental to the pay item for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, DETECTOR UNIT.

The confirmation beacon and light detector lead-in cables will be paid for at the contract unit price per FOOT for ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C, ELECTRIC CABLE IN CONDUIT, NO. 20 3C, TWISTED, SHIELDED, ELECTRIC CABLE AERIAL SUSPENDED, SIGNAL NO. 14 3C, or ELECTRIC CABLE AERIAL SUSPENDED, NO. 20 3C, TWISTED, SHIELDED, which price shall be payment in full for furnishing and installing the lead-in cable and making all electrical connections. The length of measurement shall be the distance horizontally measured between changes in direction, including cable in mast arms and slack cables. All vertical cables will not be measured for payment. Slack cables will be paid for as lead-in cables in conduit.

SPECIAL PROVISION
FOR
RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT

This item shall consist of relocating the existing emergency vehicle priority system phasing unit (light detector amplifier) from an existing traffic signal controller to the 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) (light detector amplifier) and reconnecting it/them to a new wiring harness which is to be factory wired into the new traffic signal controller cabinet.

The emergency vehicle system is not to be inoperative for more than forty-eight (48) hours and the Contractor must notify the municipality or Fire Protection District seventy-two (72) hours prior to the disconnecting of the equipment.

Basis of Payment. This item will be paid for at the contract unit price EACH for RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT which price shall be payment in full for disconnecting the existing phasing unit (light detector amplifier), relocating and connecting the phasing unit (light detector amplifier) to the new wiring hamess at its new location complete and operating to the satisfaction of the Engineer.

SPECIAL PROVISION
FOR
CONFIRMATION BEACON SYSTEM

The installation of a confirmation beacon system shall be installed into an existing emergency vehicle priority system as shown on the plans and as stated herein.

The confirmation beacon shall consist of a Par 38 LED flood lamp with a 30 degree light spread, maximum 6 watt energy consumption at 120V and a 2000 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 4D-11 of the "Manual on Uniform Traffic Control Devices". The stopped pre-emption movements shall be signalized by a continuous indication.

Basis of Payment. The confirmation beacon will be paid for at the contract unit price EACH for CONFIRMATION BEACON SYSTEM, which price shall be payment in full for furnishing and installing the confirmation beacon complete, with necessary connections for proper operation. The confirmation beacon system shall be paid for on a basis of one (1) each per intersection and shall provide confirmation beacons for all movements required in the pre-emption system.

SPECIAL PROVISION
FOR
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 the County. The Contractor shall contact the Engineer at (312) 603-1730 for a listing of approved Consultants. Any signal timing problems/complaints shall be investigated by the Consultant and as requested by the Traffic Signal Design Engineer and resolved to the Department's satisfaction within a three-year period after the first report is submitted to CCHD. The consultant will be required to assist in trouble shooting the optimized system for problems encountered with the system at no cost to the County. Trouble shooting shall include (but not limited to) answering complaints, writing letters, making split adjustment, identifying and correcting oscillation problems, etc.. The consultant shall not charge extra man-hours for this three-year trouble shooting period. The Contractor shall contact the Traffic Signal Design Engineer at (312) 603-1730 for a Consultant who is still monitoring the Traffic Signal System or for a listing of approved Consultants. The System Coordination and Timing (SCAT) consultant's name shall be supplied. The letter will be reviewed by the Engineer to determine whether the SCAT consultant to be used is approved.

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 County 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 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 re-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 County for review prior to implementation.
   c. Consultant shall conduct on-site implementation of the timings at the turn-on and make fine-tuning adjustments to the timings of the subject intersection in the field to alleviate observed adverse operating conditions and to enhance operations.

2. The following deliverables shall be provided for LEVEL I Re-Optimization.
   a. Consultant shall furnish to County 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 County and to County'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 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 the County.
   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 the County.

2. The following deliverables shall be provided for LEVEL II Re-Optimization.
   a. Consultant shall furnish to the County one (1) copy of a technical report for the optimized system. If a State system/intersection is involved one(1) copy of SCAT report for IDOT shall be furnished. 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
      (4) A Time of Day (TOD) revised chart which includes all intersections spit timing, offset and program steps shall be furnished to the County
      (5) A layout of traffic volumes which includes AM volume, PM volume, MD volume and distance between intersections
      (6) System detector/Local detector relationship layout, if there is a change.
      (7) Printed copies of master and local controller data

b. Consultant shall furnish to the County two (2) CDs for the optimized system. The CDs shall include the following elements:
   (1) Electronic copy of the technical report 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 files in ASC and PCX formats and new zone map file with system loops (if changed) for the subject intersection
   (5) The CD shall be labeled with the County 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.

Examples of Time of Day (TOD) chart, layout of traffic volumes and System detector/Local detector relationship layout can be obtained from the County.

The Consultant shall furnish to CCHD one copy of the revised SCAT Report in three-ring binders. If the system is maintained by State or other agency, an approval letter from State or other agency shall be furnished to the County. The Consultant also shall furnish to State or other agency one copy of the revised SCAT Report in three-ring binder.

When an intersection under the system is maintenance transferred to the Contractor, the SCAT consultant shall start responding to complaints and make necessary timing adjustments. The Contractor shall hire the same SCAT consultant to work on system timing under construction stages when there is a temporary traffic signal.

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.

SPECIAL PROVISION
FOR
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 the County. The Contractor shall contact the Traffic Signal Engineer at (312) 603-1730 for a listing of approved Consultants. Any signal timing problems/complaints shall be investigated by the Consultant and as requested by the Traffic Signal Design Engineer and resolved to the Department's satisfaction within a three-year period after the first report is submitted to CCHD. The consultant will be required to assist in trouble shooting the optimized system for problems encountered with the system at no cost to the County. Trouble shooting shall include (but not limited to) answering complaints, writing letters, making split adjustment, identifying and correcting oscillation problems, etc.. The consultant shall not charge extra man-hours for this three-year trouble shooting period. The Contractor shall contact the Traffic Signal Design Engineer at (312) 603-1730 for a Consultant who is still monitoring the Traffic Signal System or for a listing of approved Consultants. The System Coordination and Timing (SCAT) consultant's name shall be supplied. The letter will be reviewed by the Engineer to determine whether the SCAT consultant to be used is approved.

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 Department 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 the County.

4. A traffic responsive program shall be developed, which considers both volume and occupancy. A time-of-day program shall be developed for used as a back-up system.

5. Proposed signal timing plan for the new or modified intersection shall be forwarded to the County for review prior to implementation.

6. Consultant shall conduct on-site implementation of the timings and make fine-tuning adjustments to the timings in the field to alleviate observed adverse operating conditions and to enhance operations.

7. Speed and delay studies shall be conducted during each of the count periods along the system corridor in the field before and after implementation of the proposed timing plans for comparative evaluations. These studies should utilize specialized electronic timing and measuring devices.

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

1. Consultant shall furnish to the County one (1) copy of a SCAT Report for the optimized system. The SCAT Report shall include the following elements: If a State system/intersection is involved one (1) copy of SCAT report for IDOT shall be furnished.

Cover Page in color showing a System Map	
Figures	
	1. System overview map – showing system number, system schematic map with numbered system detectors, oversaturated movements, master location, system phone number, cycle lengths, and date of completion.
	2. General location map in color – showing signal system location in the metropolitan area.
	3. Detail system location map in color – showing cross street names and local controller addresses.
	4. Controller sequence – showing controller phase sequence diagrams.
Table of Contents	
Tab 1: Final Report	
	1. Project Overview
	2. System and Location Description (Project specific)
	3. Methodology
	4. Data Collection
	5. Data Analysis and Timing Plan Development
	6. Implementation a. Traffic Responsive Programming (Table of TRP vs. TOD Operation)
	7. Evaluation a. Speed and Delay runs 8. A Time of Day (TOD) revised chart which includes all intersections spit timing,

	offset and program steps shall be furnished to the County. 9. A layout of traffic volumes which includes AM volume, PM volume, MD volume and distance between intersections. 10. System detector/Local detector relationship layout.
Tab 2. Turning Movement Counts	
	1. Turning Movement Counts (Showing turning movement counts in the intersection diagram for each period, including truck percentage)
Tab 3. Synchro Analysis	
	1. AM: Time-Space diagram in color, followed by intersection Synchro report (Timing report) summarizing the implemented timings.
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Tab 4: Speed and Delay Studies	
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	2. Plot of the before and after runs diagram for each direction and time period.
Tab 5: Environment Report 1. Environmental impact report including gas consumption, NO2, HCCO improvement.	
Tab 5: Controller Data 1. Printed copies of master and local controller data	
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.

Examples of Time of Day (TOD) chart, layout of traffic volumes and System detector/Local detector relationship layout can be obtained from the County.

The Consultant shall furnish to CCHD one copy of the revised SCAT Report in three-ring binders. If the system is maintenance by State or other agency, an approval letter from State or other agency shall be furnished to the County. The Consultant also shall furnish to State or other agency one copy of the revised SCAT Report in three-ring binder.

When an intersection under the system is maintenance transferred to the Contractor, the SCAT consultant shall start responding to complaints and make necessary timing adjustments. The Contractor shall hire the same SCAT consultant to work on system timing under construction stages when there is a temporary traffic signal.

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 the Synchro analysis and submittal to the County, State and/or local agency for review, 30 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 and final report to County, state and/or local agency for final review, 30 percent of the bid price will be paid. The remaining 40 percent will be paid when the system is working to the satisfaction of the engineer and the report and CD have been submitted.

SPECIAL PROVISION
FOR
MEDIAN REMOVAL AND REPLACEMENT

This work consists of removing and replacing existing concrete median at locations shown on the plans or when directed by the Engineer, in accordance with the applicable requirements of Sections 440 of the Standard Specifications. The replaced median shall be similar in design to that which is existing.

If the median is partially removed, the Contractor shall machine saw a perpendicular clean joint between that portion of the median to be removed and that which is to remain in place. The depth of removal shall be as directed by the Engineer to accommodate the proposed cross-section of the median replacement material.

If the Contractor removes or damages any median or pavement out side the limits of the designated removal, he shall remove and replace the damaged portion at his own expense to the satisfaction of the Engineer.

Replacement requirements. All base, surface course or subbase removed shall be restored to the original cross section.

The elevation of the surface of the replaced surface course shall not vary more than 1/8" (3mm) from the elevation of the surface if the adjoining surface course. The subgrade, in the case of surface, base course and subbase removal, and the cushion or filler, on the base course in the case of surface course removal, shall be adjusted so that this result will be obtained.

Portland Cement Concrete Base and Surface Courses. Portland cement concrete base or surface courses or natural cement concrete base or surface courses which are removed shall be replaced with portland cement concrete base or surface courses meeting the requirements of Sections 353 and 420, respectively, except that hand methods of consolidating and finishing will be permitted.

Bituminous Surface and Binder Courses. Bituminous Surface and binder courses which are removed shall be replaced by an equal thickness of bituminous materials meeting the requirements of Section 406. The type used shall be that which closely conforms to the type which was removed, and shall be approved in writing by the Engineer.

Gravel or Crushed Stone Base and Surface Courses. Gravel or crushed stone base and surface courses which are removed shall be replaced by an equal thickness of materials meeting the requirements of either Sections 351 or 402. The type used shall be that which closely conforms to the type which was removed, and shall be approved in writing by the Engineer.

Base and Subbase Replacement. All granular or stabilized base and subbase removed shall be replaced by an equal compacted thickness of materials closely conforms to the original material and shall be compacted to the density requirements of the granular or stabilized base and subbase removed.

Basis of Payment. This work shall be paid for at the contract unit price per SQUARE FOOT (SQUARE METER) for MEDIAN REMOVAL AND REPLACEMENT, which price shall include all labor, material and equipment necessary to complete the work in place, as specified herein and as directed by the Engineer.

SPECIAL PROVISION
FOR
SIDEWALK REMOVAL AND REPLACEMENT

This work consists of removing and replacing existing concrete sidewalk at locations shown on the plans or when directed by the Engineer, in accordance with the applicable requirements of Sections 440 and 424 of the Standard Specifications. The replaced sidewalk shall be similar in design to that which is existing.

Basis of Payment. This work shall be paid for at the contract unit price per SQUARE FOOT (SQUARE METER) for SIDEWALK REMOVAL AND REPLACEMENT, which price shall include all labor material and equipment necessary to complete the work in place, as specified herein and as directed by the Engineer.

SPECIAL PROVISION
FOR
RELOCATE EXISTING LIGHT STANDARD AND LUMINAIRE COMPLETE IN PLACE

This item shall consist of removing a light standard and luminaire from its existing location and reinstalling the lighting unit on a new foundation (if needed), at another location, new wire from luminaire terminal block to pole handhole, splicing to existing circuit, as required, or as directed by the Engineer. The contractor shall take due precautions during the removal and relocation operations to prevent any damage to the pole or the luminaire. Any damages sustained shall be repaired or replaced at the sole expense of the contractor, to the satisfaction of the Engineer.

When relocating wooden lighting standards, the existing wood pole shall be removed and disposed of by the contractor. A new wood pole of the same type and size shall be furnished and installed complete. The existing mast arm and luminaire shall be relocated to the new wood pole.

Contact the Village Engineer for details of relocation.

The new foundation (if needed) will not be paid for separately but shall be included in this work and shall be of the same type as is existing. The removal and reinstallation of screw in type foundations will not be paid for separately but shall be included in this work.

The new cable and/or unit duct with cable, if required, shall be of the same type as existing and will not be paid for separately but shall be included in this work. The new cable and/or unit duct with cable if necessary shall be brought back to the next light standard or service installation.

All splicing shall be with an approved underground splice kit and will not be paid for separately but shall be included in this work.

One black and one white #10 wire shall be provided in each pole from the terminal block of the luminaire fixture to the pole handhole. Wires shall be continuous from fixture to base of pole. Splices are to be made in the pole handhole. The wire shall be #10 A.W.G. type THHN 600 volt. Quick disconnect in-line fuse holders must be installed in each line of each pole relocated.

Special Tools: The Contractor shall furnish the Cook County Highway Department with any special tools or wrenches that may be required for assembling or maintaining the Lighting Unit and Control Equipment.

Installation: The Electrical Contractor shall coordinate the cable trenching, placement and backfilling operations with the various Contractors involved in the roadway construction so that the cable will not be damaged by (A) the use of a mechanized road building equipment in the area where underground cable is or will be in existence, (B) stone or other foreign materials falling into the trench or mixing into the trench backfill material.

All wiring, connecting and grounding shall conform to the latest publication of the National Electrical Code.

All splices, taps and grounding connections shall be inspected by an inspector of the Cook County Highway Department, before wires are permanently trained in the handholes.

When splices are made in handholes or manholes the splices, when cables are trained around sides of handhole, shall be so trained that they area minimum of six inches above the conduit entrances to handhole.

All ends of conduit terminating in the control cabinet shall be blocked with a neoprene plug, as indicated on the control cabinet plan and sealed with an approved sealing compound.

Field Tests and Inspection Procedure:

(a) All secondary cable, complete shall be subjected to insulation tests after such cable is installed and before luminaries are connected into their respective circuits. Such tests shall be carried out by use of approved insulation resistance testing equipment with a minimum rating of 500 V DC and shall be witnessed by representatives of the Cook County Highway Department.

A minimum reading of five (5) megohms shall be required for each individual circuit.

(b) The completed installation shall be inspected by the Contractor and the Engineer, in accordance with Field Check List and data sheets as issued by this Department for this installation. One copy of such completed data sheets shall be returned to this Department.

(c) Upon approval of the items listed above, a Final Inspection will be carried out by qualified representatives of the Highway Agencies involved.

The cost of all field tests and inspection procedures as outlines herein shall be considered incidental to the Contract.

Connections to Existing Work.

Where new work connects to existing work, the Contractor shall do all necessary cutting and fitting to the existing work and shall remove all existing work as required to make satisfactory connections with the work to be performed under the contract so as to leave the entire work in a finished and workmanlike manner as approved by the Engineer.

The Contractor shall furnish all labor and materials to the furtherance of this end, whether or not they are distinctly shown on the plans, in any of the STANDARD SPECIFICATIONS or in these Special Provisions. All such work shall be considered incidental to this Contract unless specifically shown in the Summary of Quantities, for this Section.

Roadway lighting systems which are being replaced/relocated must remain in operation throughout the project. No lighting circuit or portion thereof shall be removed from night time operation without the approval of the Engineer. The Contractor shall patrol the lighting systems once every two weeks to check for any problems. The portions of the lighting system to be maintained are the circuits under construction in this project. If the Contractor needs to gain access to the lighting controller, they must contact the maintenance agency. The maintenance will be paid for under the pay item of "MAINTENANCE OF LIGHTING SYSTEM".

When damage occurs to any existing electrical systems during this contract, the Engineer will designate the repairs as emergency or non-emergency in nature. Non-emergency repairs shall be performed by the Contractor within six working days following discovery or notification, to the satisfaction of the Engineer. Emergency repairs shall be performed when three or more lights on a circuit or three successive lights are not operational. The work must be completed within 48 hours. Knocked down equipment which results in a danger to the motoring public will be considered an emergency repair and responded to within one hour of notification.

The Engineer shall coordinate the maintenance transfer with all agencies involved.

Basis of Payment. This item will be paid for at the contract unit price EACH for RELOCATE EXISTING LIGHT STANDARD AND LUMINAIRE COMPLETE IN PLACE which price shall be payment in full for removing and resetting the pole and luminaire, concrete foundation (if needed), removal and reinstallation of screw-in foundation, fuse holders, wire, cable, unit duct with cable, splicing kit, all fittings as required, No. 10 insulated wire from luminaire terminal block to pole handhole, all nuts, bolts, and incidentals necessary to complete the work as shown on the plans.

SPECIAL PROVISION
FOR
MAINTENANCE OF LIGHTING SYSTEMS

Replace Article 801.11 and 801.12 of the Standard Specifications with the following:

Effective the date the Contractor's activities (electrical or otherwise) at the job site begin, the Contractor shall be responsible for the proper operation and maintenance of all existing and proposed lighting systems which are part of, or which may be affected by the work until final acceptance or as otherwise determined by the Engineer.

Before performing any excavation, removal, or installation work (electrical or otherwise) at the site, the Contractor shall initiate a request for a maintenance transfer and preconstruction inspection, as specified elsewhere herein, to be held in the presence of the Engineer and a representative of the party or parties responsible for maintenance preconstruction inspection shall be made no less than seven (7) calendar days prior to the desired inspection date.

Existing lighting systems, when depicted on the plans, are intended only to indicate the general equipment installation of the systems involved and shall not be construed as an exact representation of the field conditions. It remains the Contractor's responsibility to visit the site to confirm and ascertain the exact condition of the electrical equipment and systems to be maintained.

Maintenance of Existing Lighting Systems

Existing lighting systems. Existing lighting systems shall be defined as any lighting system or part of a lighting system in service prior to this contract. The contract drawings indicate the general extent of any existing lighting, but whether indicated or not, it remains the Contractor's responsibility to ascertain the extent of effort required for compliance with these specifications and failure to do so will not be justification for extra payment or reduced responsibilities.

Extent of Maintenance

Partial Maintenance. Unless otherwise indicated, if the number of circuits affected by the contract is equal to or less than 40% of the total number of circuits in a given controller and the controller is not part of the contract work, the Contractor needs only to maintain the affected circuits. The affected circuits shall be isolated by means of in-line waterproof fuse holders as specified elsewhere and as approved by the Engineer.

Full Maintenance. If the number of circuits affected by the contract is greater than 40% of the total number of circuits in a given controller, or if the controller is modified in any way under the contract work, the Contractor shall maintain the entire controller and all associated circuits.

Maintenance of Proposed Lighting Systems.

Proposed Lighting Systems. Proposed lighting systems shall be defined as any lighting system or part of a lighting system which is to be constructed under this contract.

The Contractor shall be fully responsible for maintenance of all items installed under this contract. Maintenance shall include, but not be limited to, any equipment failures or malfunctions as well as equipment damage either by the motoring public, Contractor operations, or other means. The potential cost of replacing or repairing any malfunctioning or damaged equipment shall be included in the bid price of this item and will not be paid for separately.

Lighting System Maintenance Operations

The Contractor's responsibility shall include all applicable responsibilities of the Electrical Maintenance Contract, the County Highway Department. These responsibilities shall include the maintenance of lighting units (including sign lighting), cable runs and lighting controls. In the case of a pole knockdown or sign light damage caused by normal vehicular traffic, the Contractor shall promptly clear the lighting unit and circuit discontinuity and restore the system to service.

Responsibilities shall also include weekly night-time patrol of the lighting system, with patrol reports filed immediately with the Engineer and with deficiencies corrected within 24 hours of the patrol. Patrol reports shall be presented on standard forms as designated by the Engineer. Uncorrected deficiencies may be designated by the Engineer as necessitating emergency repairs as described elsewhere herein.

The following chart lists the maximum response, service restoration, and permanent repair time the Contractor will be allowed to perform corrective action on specific lighting system equipment.

INCIDENT OR PROBLEM	SERVICE RESPONSE TIME	SERVICE RESTORATI ON TIME	PERMANEN T REPAIR TIME
Control cabinet out	1 hour	4 hours	7 Calendar days
Hanging mast arm	1 hour to clear	NA	7 Calendar days
Radio problem	1 hour	4 hours	7 Calendar days
Motorist caused damage or leaning light pole 10 degrees or more	1 hour to clear	4 hours	7 Calendar days
Circuit out – Needs to reset breaker	1 hour	4 hours	NA
Circuit out – Cable trouble	1 hour	24 hours	21 Calendar days
Outage of 3 or more successive	1 hour	4 hours	NA
Outage of 75% of lights on one tower	1 hour	4 hours	NA
Outage of light nearest RR crossing approach, islands and gores	1 hour	4 hours	NA
Outage (single or multiple) found on night outage survey or reported to the Maintenance Contractor	NA	NA	7 Calendar days
Navigation light outage	NA	NA	24 hours

Service Response Time - amount of time from the initial notification to the Contract until a patrolman physically arrives at the location.

Service Restoration Time – amount of time from the initial notification to the Contractor until the time the system is fully operational again. (In case of motorist caused damage the undamaged portions of the system are operational.)

Permanent Repair Time – amount of time from initial notification to the Contractor until the time permanent repairs are made if the Contractor was required to make temporary repairs to meet the service restoration requirement.

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 compete 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 const of the Contract. Repeated failures and/or a gross failure of maintenance shall result in the County's Electrical Maintenance Contractor being directed to correct all deficiencies and the resulting costs deducted from any monies owed the contractor.

Damage caused by the Contactor's operations shall be repaired at no additional cost to the Contract.

Operation of Lighting

The lighting shall be operation every night, dusk to dawn. Duplicate lighting systems (such as temporary lighting and proposed new lighting) shall not be operated simultaneously. Lighting systems shall not be kept in operation during long daytime periods. The contractor shall demonstrate to the satisfaction of the Engineer that the lighting system is fully operational prior to submitting a pay request. Failure to do so will be grounds for denying the pay request.

Basis of Payment. Maintenance of lighting systems shall be paid for at the contract unit price per CALENDAR MONTH or fraction thereof for MAINTENANCE OF LIGHTING SYSTEM, which shall include all work as described herein.

SPECIAL PROVISION
FOR
CITY ELECTRIC MANHOLES TO BE ADJUSTED

Description This work shall consist of the adjustment of existing City Electric manholes. The work shall be done in accordance with Section 603 and applicable portions of Section 602 of the Standard Specifications and the Standard Detail for Frame Adjustment shown in the plans, except as herein modified.

Construction Method. This classification shall include all those existing City Electric manholes which are to be adjusted to grade where 2 feet (0.6 meters) or less of masonry will be either added, removed, or rebuilt to bring the specified casting to the finished grade of the proposed improvement.

Backfilling to sub-base elevation shall be done with sand as specified in Article 550.07; however, no separate payment for backfilling will be made under this item and the work will be considered incidental to this item.

Bricks shall meet the requirements of Section 1041.

If in any load of brick more than ten percent are inferior, the whole load will be rejected. If less than ten percent are inferior, the brick may be accepted, provided the Contractor will, at his expense, cut out all inferior bricks, and remove them from the site of the work at once.

With approval of the Engineer, the Contractor may use precast adjusting rings. Adjustment bricks, rings, and structure frames are to be set in a full mortar bed. Shimming of the frame with wood and stones shall not be allowed. The interior of the adjustment shall be "buttered" to the satisfaction of the Engineer. Use of partial bricks will not be allowed. Bricks shall be laid in full header courses only.

Existing frames and lids that are obsolete or damaged shall be replaced when ordered by the Engineer in writing, except that existing frames and lids damaged by the Contractor's operations during construction shall be replaced by the Contractor at his expense.

Removal and patching of pavement around a structure shall be considered as part of the adjustment of that structure, and no additional compensation will be made. Patching of pavement with Bituminous concrete shall not be allowed. Only High Early Strength Concrete meeting the requirements of Section 1001 and 1020 shall be used. Construction shall be in accordance with the applicable portions of Section 503 of the Standard Specifications.

Under no circumstance shall an adjustment not be completed in the same day as it is started. Under no circumstance shall debris be left in the street over night.

The contractor shall stage adjustment work so that traffic flows in a safe manner.

Method of Measurement. This work will be measured on a per each basis which will include up to the first 2 feet (0.6 meters) of required masonry work.

Basis of Payment This work shall be paid for at the contract unit price per EACH for CITY ELECTRIC MANHOLES TO BE ADJUSTED. This price shall be payment in full for excavation, construction, backfilling, concrete, brick, mortar, disposal of surplus excavation, form work and all labor and materials including reinforcement bars and ladder rungs.

SPECIAL PROVISION
FOR
UNINTERRUPTIBLE POWER SUPPLY (UPS)

The furnishing and installation of this item shall meet the requirements of Section 862 and 1074.04 of the Supplemental Specifications and Recurring Special Provisions, except as follows:

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.

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.

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 Cook County Emergency Vehicle Priority System specification at no additional cost to the contract.

Material:

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 °F (25 °C) (minimum 700 W/1000 VA active output capacity, with 90 percent minimum inverter efficiency).

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.

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

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

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.

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.

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).

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

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.

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

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.

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: 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.

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.

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.

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.

Basis of Payment

This work will be paid for at the contract unit price per EACH for UNINTERRUPTABLE POWER SUPPLY, which price shall be payment in full for furnishing and installing the Uninterruptible Power Supply complete with necessary connections for proper operation. Replacement of Emergency Vehicle Priority System confirmation beacons shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY item.

SPECIAL PROVISION
FOR
TRAFFIC SIGNAL CABINET LOAD SWITCH

This work shall consist of furnishing and installing a load switch in an existing traffic signal control cabinet. Load switches installed in a new traffic signal control cabinet are included in the cost of the cabinet. The load switch shall be according to Article 1074.03 of the Standard Specifications.

When a new load switch is being installed to replace an existing load switch, removal of the existing load switch shall be included in the cost of this item.

Basis of Payment. This work will be paid for at the contract unit price EACH for TRAFFIC SIGNAL CABINET LOAD SWITCH, which price shall be payment in full for furnishing and installing the load switch, complete with all necessary connections for proper operation.

SPECIAL PROVISION
FOR
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 the County. The Contractor shall contact the Traffic Signal Engineer at (312) 603-1730 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, if needed 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 Traffic Signal Engineer.

(e) 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 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.

SPECIAL PROVISION
FOR
COMBINATION LIGHTING AND TRAFFIC SIGNAL SERVICE INSTALLATION, POLE MOUNTED

The installation of a service installation shall meet the requirements of Section 805 of the Standard Specifications, except as follows:

This item shall consist of furnishing and installing for the Lighting and Traffic Signal System a service disconnect box, 2 or 3 wire mounted on a wood pole as specified below and as shown on the detail drawings and as directed by the Engineer.

All installations shall meet the requirements of the details in the IDOT "Combination Lighting and Traffic Pole Mounting Electric Service Box Detail" and applicable portions of the Specifications. The electrical service installation shall be the electric service disconnecting means and it shall be identified as suitable for use as service equipment.

Materials.

1. 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.

2. The disconnect box shall be NEMA 4X stainless steel, nominally 12"W x 16"H x 8"D with a piano hinged door, steel back panel, fast acting stainless steel enclosure clamps, padlock provisions and door stop kit (Hoffman catalog #A-16H1208SS6LP/A-16P12/A-DSTOPK/C-PMK12, or approved equal). A plastic laminated layout and circuit diagram shall be affixed to the interior side of the enclosure door.

3. 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.

4. 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 shall be rated 60 amperes with one pole and lighting shall be rated 40 amperes with one pole , otherwise noted on the plans, 120 V and the auxiliary circuit breakers shall be rated 10 amperes, 120 V. A 2-color engraved plastic nameplate, attached with screws and engraved as indicated, shall be provided for each main breaker.

5. 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.

6. Bus bars, connectors, and lugs shall be copper, insulated and isolated, and configured to prevent shorted conditions from tightening terminations. Lugs and connectors shall be rated for 75°C. Overall bus sections shall be configured behind an insulating barrier shield which is removable for access to connections. The circuit breakers and bus may be part of an approved panel board assembly.

7. The Contractor shall notify the Commonwealth Edison 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 Commonwealth Edison Marketing Representative has received service charge payments from the Contractor. Prior to contacting the Commonwealth Edison marketing representative for service connection, the service installation, controller cabinet and cable must be installed for inspection by Commonwealth Edison.

8. Ground Rod. Ground rods shall be copper-clad steel, a minimum of 10' (3.0 meters) in length, and 3/4" (20 mm) 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.

9. Combination ground and neutral bar shall be configured with separate ground and neutral sections and spare terminals as indicated. The heads of grounding screws shall be painted green. The heads of neutral screw shall be painted white.

Installation.

1. 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.

2. 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.

The Commonwealth Edison contact phone number is 866-639-3532.

Basis of Payment. This work will be paid for at the contract unit price EACH for COMBINATION LIGHTING AND TRAFFIC SIGNAL SERVICE INSTALLATION, POLE MOUNTED, which shall be payment in full for furnishing and installing the service installation complete. COMBINATION LIGHTING AND TRAFFIC SIGNAL SERVICE INSTALLATION, POLE shall include the 3/4" (20 mm) grounding conduit, ground rod, and pole mount assembly. Any charges by the utility company to provide electrical services to the service installation will be paid for in accordance with Article 109.05 of the Standard Specifications.

SPECIAL PROVISION
FOR
ILLUMINATED STREET NAME SIGN

Description.
This work shall consist of furnishing and installing a LED internally illuminated street name sign.

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.

Materials
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 two face 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. Sign legend shall be approved by the County before signs are ordered. The sign assembly shall consist of a four-, six-, or eight-foot aluminum housing. White translucent 3M DG3 reflective sheeting sign faces with the street name applied in 3M/Scotchlite Series 1177 or current 3M equivalent transparent green shall be installed in hinged doors on the side of the sign for easy access to perform general cleaning and maintenance operations. Illumination shall occur with LED Light Engine as specified.

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

(c) General Construction.

1. The LED Light Engine shall be a single, self-contained device, for installation in an existing street sign housing. The power supply must be designed to fit and mounted on the inside wall at one end of the street sign housing. The LED Light Engine shall be mounted within the inner top portion of the housing and no components of the light source shall sit between the sign faces.

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

(d) Mechanical Construction.

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

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

3. The sign face shall be constructed of .125" white translucent polycarbonate. The letters shall be 8" upper case and 6" lower case. The sign face legend background shall consist of 3M/Scotchlite Series 4090T or current equivalent 3M translucent DG3 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.

10. Refer to the illuminated street name sign mounting detail standard for wiring methods and material.

(e) Electrical.

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

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

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

4. The LED Light Engine shall be 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/m2.

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.

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.

The Illuminated street name sign cable will be paid for at the contract unit price per Foot for Electric Cable In Conduit, Street name Sign, No. 14 3C, Type SOOW, which price shall be payment in full for furnishing and installing the cable and making all electrical connections. The length of measurement shall be the distance horizontally measured between changes in direction, including cable in mast arms and slack cables. All vertical cables will not be measured for payment. Slack cables will be paid for as lead-in cables in conduit.

SPECIAL PROVISION
FOR
RELOCATE EXISTING ILLUMINATED STREET NAME SIGN

This item shall consist of relocating the existing illuminated street name sign from an existing traffic signal mast arm to the new traffic signal mast arm as indicated in the plans or as directed by the Engineer.

The work shall include disconnecting illuminated sign and reconnecting it to the new cable.

If a new traffic signal controller and cabinet is being installed the existing Illuminated sign controls shall be removed from the existing controller cabinet and installed into the proposed controller cabinet (contactor, photocontrol, fuseholder, fuses, etc.).

Basis of Payment. This item will be paid for at the contract unit price EACH for RELOCATE EXISTING ILLUMINATED STREET NAME SIGN, which price shall be payment in full for disconnecting the existing Illuminated sign, relocating and connecting the illuminated sign to the new cable complete including controls, wiring and operating to the satisfaction of the Engineer.

The Illuminated street name sign cable will be paid for at the contract unit price per FOOT for ELECTRIC CABLE IN CONDUIT, STREET NAME SIGN, NO. 14 3C, TYPE SOOW, which price shall be payment in full for furnishing and installing the cable and making all electrical connections. The length of measurement shall be the distance horizontally measured between changes in direction, including cable in mast arms and slack cables. All vertical cables will not be measured for payment. Slack cables will be paid for as lead-in cables in conduit.

SPECIAL PROVISION
FOR
VIDEO DETECTION SYSTEM, SINGLE CAMERA/PROCESSOR VIDEO DETECTION

This work shall consist of furnishing and installing an Autoscope Solo Terra or approved equal Video Detection System including all necessary hardware, cable and accessories as specified on the plans. An extension pole for mounting video cameras, when needed or directed by the engineer, will be included in this item.

The system shall consist of one Image Sensor and Machine Vision Processor (MVP) or Video Detection Processor (VDP) integrated into one compact unit. Communication or Extension modules shall be provided which act as interface between the image sensor/MVP or VDP and the traffic controller. The communication or Extension interface unit shall be shelf mount or it shall fit a NEMA TS-1 and TS-2 detector rack depending on the application.

The system shall be able to detect either approaching or receding vehicles in multiple traffic lanes. With a MVP or VDP capable of handling one image sensors, there shall be a minimum of 24 detection zones that can be user-defined through interactive graphics by placing lines and/or boxes in an image or a VGA monitor. The user shall be able to redefine previously defined detection zones. The MVP or VDP shall calculate traffic parameters in real-time and provide local non-volatile data storage for later downloading and analysis.

Video Detection - General

This specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images. The detection of vehicles passing through the field-of-view of an image sensor shall be made available to a large variety of end user applications as simple contact closure outputs that reflect the current realtime detector or alarm states (on/off) or as summary traffic statistics that are reported locally or remotely. The contact closure outputs shall be provided to a traffic signal controller and comply with the National Electrical Manufacturers Association (NEMA) type C or D detector.

System Hardware

The machine vision system hardware shall consist of three components: 1) a color, min 10x zoom, MVP or VDP sensor 2) a modular cabinet interface unit 3) a communication interface panel. Additionally, an optional personal computer (PC) shall host the server and client applications that are used to program and monitor the system components. The realtime performance shall be observed by viewing the video output from the sensor with overlaid flashing detectors to indicate the current detection state (on/off). The MVP or VDP sensor shall optionally store cumulative traffic statistics internally in non-volatile memory for later retrieval and analysis.

The MVP or VDP shall communicate to the modular cabinet interface unit via the communication or Extension interface panel and the software applications using the industry standard TCP/IP network protocol.

The modular cabinet interface unit shall communicate directly with up to eight (8) MVP or VDP sensors and shall comply with the form factor and electrical characteristics to plug directly into a NEMA type C or D detector rack.

System Software

The MVP or VDP sensor embedded software shall incorporate multiple applications that perform a variety of diagnostic, installation, fault tolerant operations, data communications, digital video streaming, and vehicle detection processing. The detection shall be reliable, consistent, and perform under all weather, lighting, and traffic congestion levels. An embedded web server shall permit standard internet browsers to connect and perform basic configuration, maintenance, and video streaming services.

FUNCTIONAL CAPABILITIES

MVP or VDP Sensor

The MVP or VDP sensor shall be an integrated imaging color CCD array with zoom lens optics, high-speed, dual-core image processing hardware bundled into a sealed enclosure. The CCD array shall be directly controlled by the dual-core processor, thus providing high-quality video for detection that has virtually no noise to degrade detection performance. It shall be possible to zoom the lens as required for setup and operation. The camera shall be in a water tight enclosure. The camera enclosure shall be equipped with a sunshield which includes a water diversion device, which prevents water from flowing in the cameras field of view. The camera enclosure shall contain a heater to assure proper operation of the camera at low temperatures. The heater shall prevent condensation on the optical face plate of the enclosure. The enclosure shall be equipped with weathered tight connections for all cables and connectors. A minimum of a nine (9) inch in-cabinet video monitor is required for view and/or programming detector zones.

Power

The MVP or VDP sensor shall operate on 110/220 VAC, 50/60Hz at a maximum of 45 watts. The MVP or VDP sensor shall operate in a temperature range of -29°F to 165°F (-34°C to 74°C).

Detection Zone Programming

Placement of detection zones shall be by means of a PC with a Windows operating system, a keyboard, and a mouse or monitor and mouse. The PC monitor shall be able to show the detection zones superimposed on images of traffic scenes.

The detection zones shall be created by using a mouse to draw detection zones on the PC monitor and/or cabinet monitor. Using the mouse and keyboard it shall be possible to place, size, and orient detection zones to provide optimal road coverage for vehicle detection. It shall be possible to download detector configurations from the PC to the MVP or VDP sensor and cabinet interface module, to retrieve the detector configuration that is currently running in the MVP or VDP sensor, and to back up detector configurations by saving them to the PC fixed disks or other removable storage media.

The supervisor computer's mouse and keyboard or monitor and mouse shall be used to edit previously defined detector configurations to permit adjustment of the detection zone size and placement, to add detectors for additional traffic applications, or to reprogram the MVP or VDP sensor for different traffic applications or changes in installation site geometry or traffic rerouting.

Optimal Detection

The video detection system shall optimally detect vehicle passage and presence when the MVP or VDP sensor is mounted 30 feet (10 m) or higher above the roadway, when the image sensor is adjacent to the

desired coverage area, and when the distance to the farthest detection zone locations are not greater than ten (10) times the mounting height of the MVP or VDP. The recommended deployment geometry for optimal detection also requires that there be an unobstructed view of each traveled lane where detection is required. Although optimal detection may be obtained when the MVP or VDP is mounted directly above the traveled lanes, the MVP or VDP shall not be required to be directly over the roadway. The MVP or VDP shall be able to view either approaching or receding traffic or both in the same field of view. The preferred MVP or VDP sensor orientation shall be to view approaching traffic since there are more high contrast features on vehicles as viewed from the front rather than the rear.
Modular Cabinet Interface Unit

The modular cabinet interface unit shall provide the hardware and software means for up to eight (8) MVP or VDP sensors to communicate real-time detection states and alarms to a local traffic signal controller. It shall comply with the electrical and protocol specifications of the detector rack standards.
The modular cabinet interface unit shall be a simple interface card that plugs directly into a NEMA type C or D detector rack. The modular cabinet interface unit shall occupy only 2 slots of the detector rack. The modular cabinet interface unit shall accept up to eight (8) inputs and shall provide up to twenty-four (24) detector outputs.

System Installation & Training
The supplier of the video detection system may supervise the installation and testing of the video detection system and computer equipment as required by the contracting agency.

Training is available to personnel of the contracting agency in the operation, set up, and maintenance of the video detection system. The MVP or VDP sensor and its support hardware / software is a sophisticated leading-edge technology system. Proper instruction from certified instructors is recommended to ensure that the end user has complete competency in system operation. The User's Guide is not an adequate substitute for practical classroom training and formal certification by an approved agency.

Warranty, Service, & Support
For a minimum of two (2) years, the supplier shall warrant the video detection system. An option for additional year(s) warranty for up to 5 years shall be available. Ongoing software support by the supplier shall include software updates of the MVP or VDP sensor, modular cabinet interface unit, and supervisor computer applications. These updates shall be provided free of charge during the warranty period. The supplier shall maintain a program for technical support and software updates following expiration of the warranty period. This program 'shall be available to the contracting agency in the form of a separate agreement for continuing support.

Basis of Payment: This work shall be paid at the contract unit price EACH for VIDEO DETECTION SYSTEM, SINGLE CAMERA/PROCESSOR VIDEO DETECTION, as described above, which price will be payment in full for furnishing, installing and setting up the video detection system, with necessary connections and programming for proper operation.

The cable shall be in accordance with the recommendation of the manufacturer of the Video Detection System. The video detection cable will be paid for at the contract unit price per FOOT for ELECTRIC CABLE, VIDEO DETECTION SYSTEM which price will be payment in full for furnishing and installing the video detection cable, as specified herein, with all necessary connections for proper operation.

SPECIAL PROVISION
FOR
VIDEO DETECTION SYSTEM, COMPLETE INTERSECTION

This work shall consist of furnishing and installing an Autoscope Solo Terra or approved equal Video Detection System including all necessary hardware, cable and accessories as specified on the plans. An extension pole for mounting video cameras, when needed or directed by the engineer, will be included in this item.

The system shall consist of one Image Sensor and Machine Vision Processor (MVP) or Video Detection Processor (VDP) integrated into one compact unit. Communication or Extension modules shall be provided which act as interface between the image sensor/MVP or VDP and the traffic controller. The communication or Extension interface unit shall be shelf mount or it shall fit a NEMA TS-1 and TS-2 detector rack depending on the application.

The system shall be able to detect either approaching or receding vehicles in multiple traffic lanes. With a MVP or VDP capable of handling one image sensors, there shall be a minimum of 24 detection zones that can be user-defined through interactive graphics by placing lines and/or boxes in an image or a VGA monitor. The user shall be able to redefine previously defined detection zones. The MVP or VDP shall calculate traffic parameters in real-time and provide local non-volatile data storage for later downloading and analysis.

Video Detection - General

This specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images. The detection of vehicles passing through the field-of-view of an image sensor shall be made available to a large variety of end user applications as simple contact closure outputs that reflect the current realtime detector or alarm states (on/off) or as summary traffic statistics that are reported locally or remotely. The contact closure outputs shall be provided to a traffic signal controller and comply with the National Electrical Manufacturers Association (NEMA) type C or D detector.

System Hardware

The machine vision system hardware shall consist of three components: 1) a color, min 10x zoom, MVP or VDP sensor 2) a modular cabinet interface unit 3) a communication interface panel. Additionally, an optional personal computer (PC) shall host the server and client applications that are used to program and monitor the system components. The realtime performance shall be observed by viewing the video output from the sensor with overlaid flashing detectors to indicate the current detection state (on/off). The MVP or VDP sensor shall optionally store cumulative traffic statistics internally in non-volatile memory for later retrieval and analysis.

The MVP or VDP shall communicate to the modular cabinet interface unit via the communication or Extension interface panel and the software applications using the industry standard TCP/IP network protocol.

The modular cabinet interface unit shall communicate directly with up to eight (8) MVP or VDP sensors and shall comply with the form factor and electrical characteristics to plug directly into a NEMA type C or D detector rack.

System Software

The MVP or VDP sensor embedded software shall incorporate multiple applications that perform a variety of diagnostic, installation, fault tolerant operations, data communications, digital video streaming, and vehicle detection processing. The detection shall be reliable, consistent, and perform under all weather, lighting, and traffic congestion levels. An embedded web server shall permit standard internet browsers to connect and perform basic configuration, maintenance, and video streaming services.

FUNCTIONAL CAPABILITIES

MVP or VDP Sensor

The MVP or VDP sensor shall be an integrated imaging color CCD array with zoom lens optics, high-speed, dual-core image processing hardware bundled into a sealed enclosure. The CCD array shall be directly controlled by the dual-core processor, thus providing high-quality video for detection that has virtually no noise to degrade detection performance. It shall be possible to zoom the lens as required for setup and operation. The camera shall be in a water tight enclosure. The camera enclosure shall be equipped with a sunshield which includes a water diversion device, which prevents water from flowing in the cameras field of view. The camera enclosure shall contain a heater to assure proper operation of the camera at low temperatures. The heater shall prevent condensation on the optical face plate of the enclosure. The enclosure shall be equipped with weathered tight connections for all cables and connectors. A minimum of a nine (9) inch in-cabinet video monitor is required for view and/or programming detector zones.

Power

The MVP or VDP sensor shall operate on 110/220 VAC, 50/60Hz at a maximum of 45 watts. The MVP or VDP sensor shall operate in a temperature range of -29°F to 165°F (-34°C to 74°C).

Detection Zone Programming

Placement of detection zones shall be by means of a PC with a Windows operating system, a keyboard, and a mouse or monitor and mouse. The PC monitor shall be able to show the detection zones superimposed on images of traffic scenes.

The detection zones shall be created by using a mouse to draw detection zones on the PC monitor and/or cabinet monitor. Using the mouse and keyboard it shall be possible to place, size, and orient detection zones to provide optimal road coverage for vehicle detection. It shall be possible to download detector configurations from the PC to the MVP or VDP sensor and cabinet interface module, to retrieve the detector configuration that is currently running in the MVP or VDP sensor, and to back up detector configurations by saving them to the PC fixed disks or other removable storage media.

The supervisor computer's mouse and keyboard or monitor and mouse shall be used to edit previously defined detector configurations to permit adjustment of the detection zone size and placement, to add detectors for additional traffic applications, or to reprogram the MVP or VDP sensor for different traffic applications or changes in installation site geometry or traffic rerouting.

Optimal Detection

The video detection system shall optimally detect vehicle passage and presence when the MVP or VDP sensor is mounted 30 feet (10 m) or higher above the roadway, when the image sensor is adjacent to the desired coverage area, and when the distance to the farthest detection zone locations are not greater than ten (10) times the mounting height of the MVP or VDP. The recommended deployment geometry for optimal detection also requires that there be an unobstructed view of each traveled lane where detection is required. Although optimal detection may be obtained when the MVP or VDP is mounted directly above the traveled lanes, the MVP or VDP shall not be required to be directly over the roadway. The MVP or VDP shall be able to view either approaching or receding traffic or both in the same field of view. The preferred MVP or VDP sensor orientation shall be to view approaching traffic since there are more high contrast features on vehicles as viewed from the front rather than the rear.

Modular Cabinet Interface Unit

The modular cabinet interface unit shall provide the hardware and software means for up to eight (8) MVP or VDP sensors to communicate real-time detection states and alarms to a local traffic signal controller. It shall comply with the electrical and protocol specifications of the detector rack standards.

The modular cabinet interface unit shall be a simple interface card that plugs directly into a NEMA type C or D detector rack. The modular cabinet interface unit shall occupy only 2 slots of the detector rack. The modular cabinet interface unit shall accept up to eight (8) inputs and shall provide up to twenty-four (24) detector outputs.

System Installation & Training

The supplier of the video detection system may supervise the installation and testing of the video detection system and computer equipment as required by the contracting agency.

Training is available to personnel of the contracting agency in the operation, set up, and maintenance of the video detection system. The MVP or VDP sensor and its support hardware / software is a sophisticated leading-edge technology system. Proper instruction from certified instructors is recommended to ensure that the end user has complete competency in system operation. The User's Guide is not an adequate substitute for practical classroom training and formal certification by an approved agency.

Warranty, Service, & Support

For a minimum of two (2) years, the supplier shall warrant the video detection system. An option for additional year(s) warranty for up to 5 years shall be available. Ongoing software support by the supplier shall include software updates of the MVP or VDP sensor, modular cabinet interface unit, and supervisor computer applications. These updates shall be provided free of charge during the warranty period. The supplier shall maintain a program for technical support and software updates following expiration of the warranty period. This program 'shall be available to the contracting agency in the form of a separate agreement for continuing support.

Basis of Payment: This work shall be paid at the contract unit price EACH for VIDEO DETECTION SYSTEM, COMPLETE INTERSECTION as described above, which price will be payment in full for furnishing, installing and setting up the video detection system, with necessary connections and programming for proper operation.

The cable shall be in accordance with the recommendation of the manufacturer of the Video Detection System. The video detection cable will be paid for at the contract unit price per FOOT for ELECTRIC CABLE, VIDEO DETECTION SYSTEM which price will be payment in full for furnishing and installing the video detection cable, as specified herein, with all necessary connections for proper operation.

SPECIAL PROVISION
FOR
UNINTERRUPTIBLE POWER SUPPLY WITHOUT CABINET

The furnishing and installation of this item shall meet the requirements of Section 862 and 1074.04 of the Supplemental Specifications and Recurring Special Provisions, except as follows:

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.

The UPS shall additionally include, all material needed to make a working system. The UPS shall provide reliable emergency power to the traffic signals in the event of a power failure or interruption.

Installation

The UPS system shall be installed in a Type Super P cabinet which is paid for under "Full Actuated Controller and Cabinet, Type Super P".

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 Cook County Emergency Vehicle Priority System specification at no additional cost to the contract.

Material:

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 °F (25 °C) (minimum 700 W/1000 VA active output capacity, with 90 percent minimum inverter efficiency).

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.

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

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

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.

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.

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: 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.

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.

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.

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.

Basis of Payment

This work will be paid for at the contract unit price per EACH for UNINTERRUPTABLE POWER SUPPLY WITHOUT CABINET, which price shall be payment in full for furnishing and installing the Uninterruptible Power Supply complete with necessary connections for proper operation. Replacement of Emergency Vehicle Priority System confirmation beacons shall be included in the cost of the UNINTERRUPTABLE POWER SUPPLY WITHOUT CABINET item.

SPECIAL PROVISION
FOR
MODIFYING EXISTING CONTROLLER CABINET

The work shall consist of modifying an existing controller cabinet as follows:

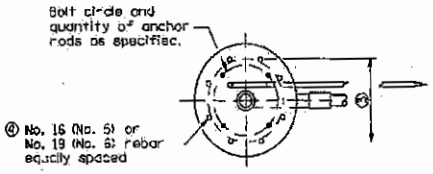
(a) Uninterruptible Power Supply (UPS). The addition of uninterruptible power supply (UPS) to an existing controller cabinet could require the relocation of the existing controller cabinet items to allow for the installation of the uninterruptible power supply (UPS) components inside the existing controller cabinet as outlined under section 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.

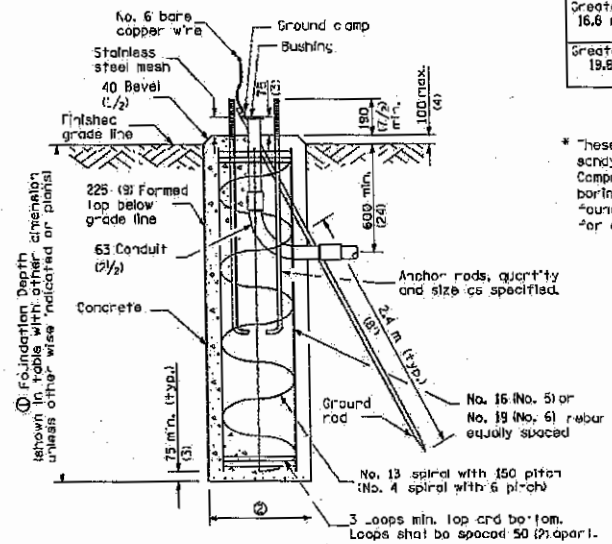
(c) Light Emitting Diode (LED), Signal Head, Retrofit. The contractor shall verify that the existing load switches meet the requirements of Section 1074.03(2) of the Standard Specifications and the recommended load requirements of light emitting diode (LED) traffic signal modules, pedestrian signal modules, 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 MODIFYING 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 at the contract unit price per each for MODIFYING EXISTING CONTROLLER, per Section 895.04 and 895.08 of the standard Specifications.



TOP VIEW



TYPE E

For standard and combination mast arm assemblies. Mast arm assemblies with dual arms require a special foundation design.

Mast Arm Length	① Foundation Depth*	② Foundation Diameter	③ Spiral Diameter	④ Quantity of Rebars	Size of Rebars
Less than 9.1 m (30')	3.0 m (10'-0")	750 (30)	600 (24)	8	16 (5)
Greater than or equal to 9.1 m (30') and less than 12.2 m (40')	4.1 m (13'-6")	750 (30)	600 (24)	8	16 (5)
	3.4 m (11'-3")	900 (36)	750 (30)	12	16 (5)
Greater than or equal to 12.2 m (40') and less than 15.2 m (50')	4.0 m (13'-0")	900 (36)	750 (30)	12	16 (5)
Greater than or equal to 15.2 m (50') and up to 16.8 m (55')	4.6 m (15'-0")	900 (36)	750 (30)	12	19 (6)
Greater than or equal to 16.8 m (56') and less than 19.8 m (65')	6.4 m (21'-0")	1060 (42)	900 (36)	16	19 (6)
Greater than or equal to 19.8 m (65') and up to 22.9 m (75')	7.6 m (25'-0")	1060 (42)	900 (36)	16	19 (6)

* 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 (Q_u) > 100 kPa (1.0 tsf). 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.

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2008
ENGINEER OF SPECIFICATIONS

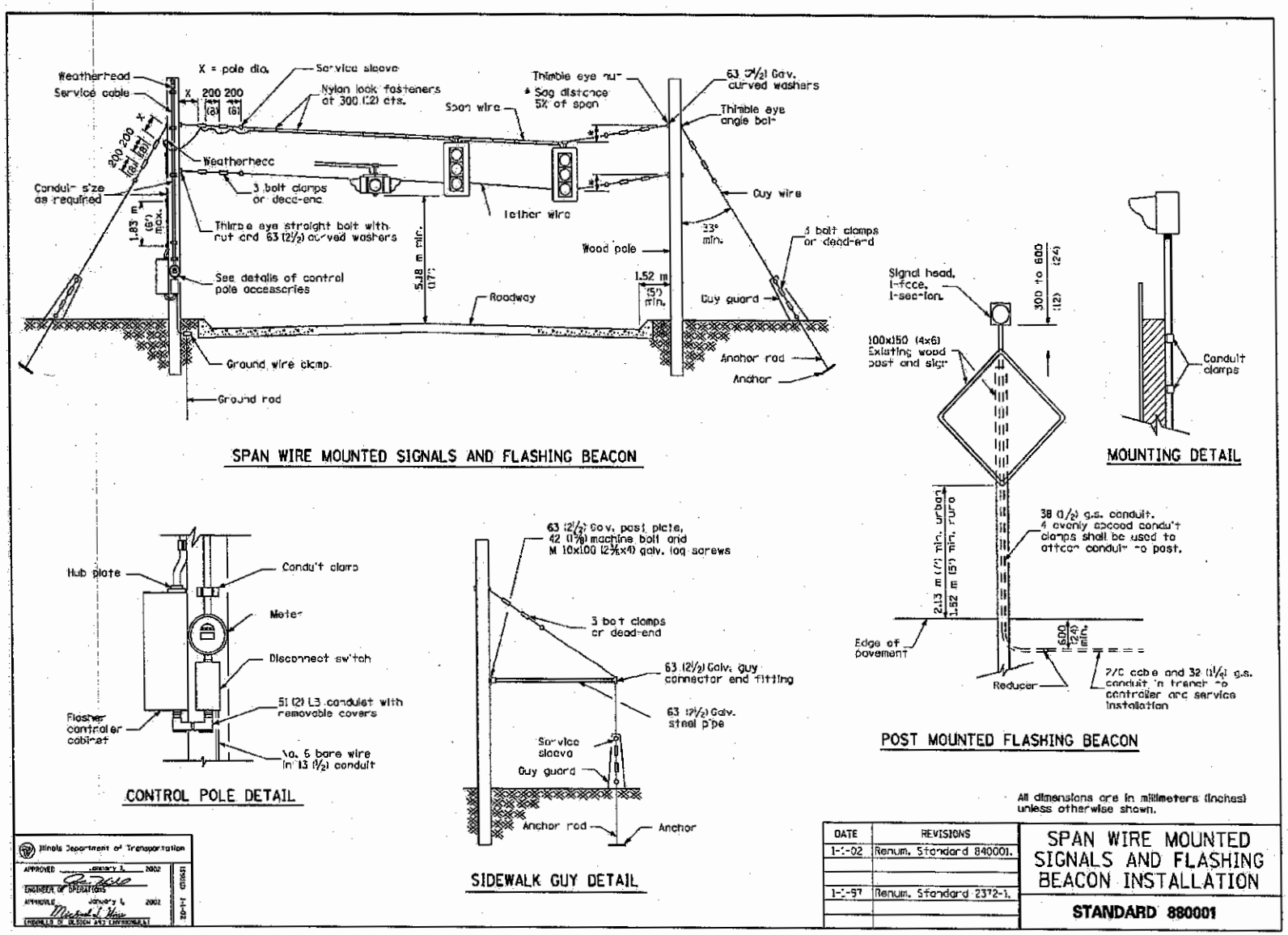
APPROVED January 1, 2008
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-07

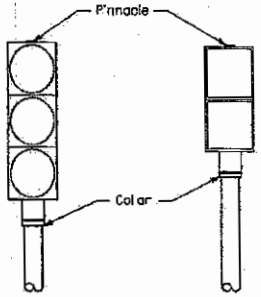
CONCRETE FOUNDATION DETAILS

(Sheet 2 of 2)

STANDARD 878001-06



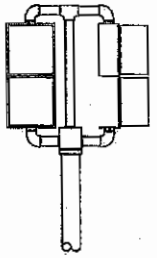
Weatherhead
Service cable
X = pole dia.
Service sleeve
Nylon lock fasteners at 300 (12) cts.
Thimble eye nut
* Sag distance 5% of span
Span wire
63 (2½) Galv. curved washers
Thimble eye angle bolt
Weatherhead
3 bolt clamps or dead-end
Conduit size as required
Thimble eye straight bolt with nut and 63 (2½) curved washers
Tether wire
Guy wire
33° min.
3 bolt clamps or dead-end
Wood pole
See details of control pole accessories
5.18 m min. (17')
1.52 m (5') min.
Guy guard
Roadway
Ground wire clamp
Anchor rod
Anchor
Ground rod
SPAN WIRE MOUNTED SIGNALS AND FLASHING BEACON
Signal head, 1-face, 1-section
300 to 600 (12) (24)
100x150 (4x6) Existing wood post and sign
Conduit clamps
MOUNTING DETAIL
38 (1/2) g.s. conduit. 4 evenly spaced conduit clamps shall be used to attach conduit to post.
2.13 m (7') min. urban
1.52 m (5') min. rural
Edge of pavement
600 (24) min.
Reducer
2/C cable and 32 (1¼) g.s. conduit in trench to controller and service installation
POST MOUNTED FLASHING BEACON
Hub plate
Conduit clamp
Meter
Disconnect switch
51 (2) L3 conduit with removable covers
Flasher controller cabinet
No. 6 bare wire in 13 (½) conduit
CONTROL POLE DETAIL
63 (2½) Galv. post plate, 42 (1⅝) machine bolt and M 10x100 (2⅜x4) galv. lag screws
3 bolt clamps or dead-end
63 (2½) Galv. guy connector end fitting
63 (2½) Galv. steel pipe
Service sleeve
Guy guard
Anchor rod
Anchor
SIDEWALK GUY DETAIL
All dimensions are in millimeters (inches) unless otherwise shown.
Illinois Department of Transportation
APPROVED January 3, 2002
ENGINEER OF OPERATIONS
APPROVED January 4, 2002
ENGINEER OF DESIGN AND ENVIRONMENT
ISSUED 1-4-02
DATE
REVISIONS
1-1-02
Renum. Standard 840001.
1-1-97
Renum. Standard 2372-1.
SPAN WIRE MOUNTED SIGNALS AND FLASHING BEACON INSTALLATION
STANDARD 880001



POST MOUNTED
TRAFFIC SIGNAL HEAD

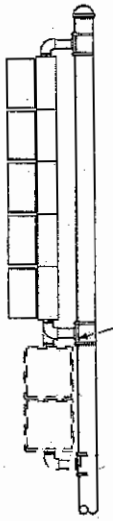
POST MOUNTED
PEDESTRIAN SIGNAL HEAD

ONE WAY



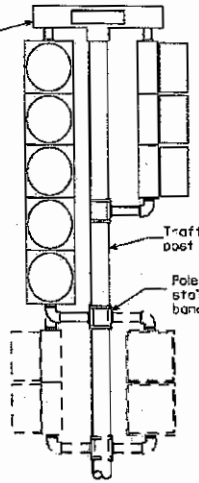
POST MOUNTED
PEDESTRIAN SIGNAL HEAD

TWO WAY

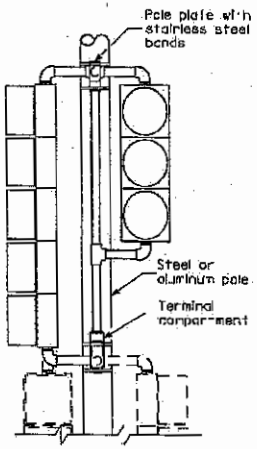


BRACKET MOUNTED
TRAFFIC SIGNAL HEAD

ONE WAY

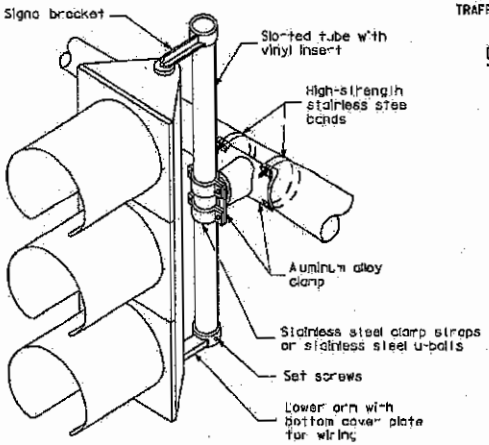


BRACKET MOUNTED
TRAFFIC SIGNAL HEAD



BRACKET MOUNTED
TRAFFIC SIGNAL HEAD

TWO WAY



STEEL MAST ARM MOUNTING

All dimensions are in millimeters (inches) unless otherwise shown.

DATE	REVISIONS
1-1-02	Renum. Standard 840006.
1-1-98	Renum. Standard 839001.

TRAFFIC SIGNAL MOUNTING DETAILS

STANDARD 880006

Illinois Department of Transportation

APPROVED January 1, 2002
ENGINEER OF OPERATIONS

APPROVED January 1, 2002
ENGINEER OF DESIGN AND ENVIRONMENT

TRAFFIC SIGNAL LEGEND

ITEM	REMOVAL	EXISTING	PROPOSED
CONTROLLER CABINET			
RAILROAD CONTROL CABINET			
COMMUNICATIONS CABINET			
MASTER CONTROLLER			
MASTER MASTER CONTROLLER			
UNINTERRUPTABLE POWER SUPPLY			
SERVICE INSTALLATION, (F) POLE OR (G) GROUND MOUNT			
TELEPHONE CONNECTION (F) POLE OR (G) GROUND MOUNT			
STEEL MAST ARM ASSEMBLY AND POLE			
ALUMINUM MAST ARM ASSEMBLY AND POLE			
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE			
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH PTZ CAMERA			
SIGNAL POST			
TEMPORARY WOOD POLE (CLASS 5 OR BETTER) 45 FOOT LENGTH MINIMUM			
GUY WIRE			
SIGNAL HEAD			
SIGNAL HEAD CONSTRUCTION STAGE (NUMBERS INDICATE THE CONSTRUCTION STAGE)			
SIGNAL HEAD WITH BACKPLATE			
SIGNAL HEAD OPTICALLY PROGRAMMED			
FLASHER INSTALLATION IS DENOTED SOLAR POWERED			
PEDESTRIAN SIGNAL HEAD			
PEDESTRIAN PUSHBUTTON DETECTOR			
ACCESSIBLE PEDESTRIAN PUSHBUTTON DETECTOR			
ILLUMINATED SIGN "NO LEFT TURN"			
ILLUMINATED SIGN "NO RIGHT TURN"			
DETECTOR LOOP, TYPE I			
PREFORMED DETECTOR LOOP			
MICROWAVE VEHICLE SENSOR			
VIDEO DETECTION CAMERA			
VIDEO DETECTION ZONE			
PAN, TILT, ZOOM CAMERA			
WIRELESS DETECTOR SENSOR			
WIRELESS ACCESS POINT			

ITEM	REMOVAL	EXISTING	PROPOSED
EMERGENCY VEHICLE LIGHT DETECTOR			
CONFIRMATION BEACON			
HANDHOLE			
HEAVY DUTY HANDHOLE			
DOUBLE HANDHOLE			
JUNCTION BOX			
UNDERGROUND CONDUIT, GALVANIZED STEEL, RGS			
TEMPORARY SPAN WIRE, 1/4 INCH (6 MM) AND CABLE			
COMMON TRENCH			TT
DETECTABLE WARNING, IN GROUND TEMPLATE			DW
SYSTEM ITEM		S	S
INTERSECTION ITEM		I	IP
REMOVE ITEM	R		
RELOCATE ITEM	R		
ADJUSTED ITEM	A		
12" (300mm) TRAFFIC SIGNAL SECTION			
12" (300mm) RED WITH 8" (200mm) YELLOW AND GREEN TRAFFIC SIGNAL FACE			
SIGNAL FACE			
SIGNAL FACE WITH BACKPLATE, 12" (300mm) PROGRAMMABLE HEAD			
12" (300mm) PEDESTRIAN SIGNAL HEAD WITH COUNTDOWN TIMER			
12" (300mm) PEDESTRIAN SIGNAL HEAD INTERNATIONAL SYMBOL, OUTLINED			
12" (300mm) PEDESTRIAN SIGNAL HEAD INTERNATIONAL SYMBOL, SOLID			
PEDESTRIAN WALKING HEAD, INTERNATIONAL SYMBOL, WITH COUNTDOWN TIMER			
RADIO INTERCONNECT			
RADIO REPEATER			
DENOTES MARKER OF CONDUCTORS, ELECTRIC CABLE NO. 14, UNLESS NOTED OTHERWISE; ALL DETECTOR LOOP CABLE TO BE SHIELDED			
GROUND CABLE IN CONDUIT NO. 8 SOLID COPPER (GREEN)			

ITEM	REMOVAL	EXISTING	PROPOSED
ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 (2C, UNLESS NOTED OTHERWISE)			
COAXIAL CABLE			
VENDOR CABLE FOR CAMERA			
COPPER INTERCONNECT CABLE, NO. 19 3 PAIR TWISTED, SHIELDED			
FIBER OPTIC CABLE NO. 62.5/125, NRZF			
FIBER OPTIC CABLE NO. 62.5/125, NRZF SLOTT			
FIBER OPTIC CABLE NO. 62.5/125, NUMBER OF FIBERS & TYPE TO BE NOTED ON PLANS			
GROUND ROD (1) OR CONNECTION ON HANDHOLE, (F) POST, (G) MAST ARM, OR (S) SERVICE			
CONTROLLER CABINET AND FOUNDATION TO BE REMOVED			
STEEL MAST ARM POLE AND FOUNDATION TO BE REMOVED			
ALUMINUM MAST ARM POLE AND FOUNDATION TO BE REMOVED			
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE AND FOUNDATION TO BE REMOVED			
SIGNAL POST AND FOUNDATION TO BE REMOVED			
INTERSECTION & SAMPLING SYSTEM DETECTOR			
SAMPLING SYSTEM DETECTOR			
EXISTING INTERSECTION LOOP DETECTOR PROPOSED INTERSECTION AND SAMPLING SYSTEM DETECTOR			
EXISTING FRAMEWORK INTERSECTION LOOP DETECTOR PROPOSED INTERSECTION AND SAMPLING SYSTEM DETECTOR			
PREFORMED INTERSECTION AND SAMPLING SYSTEM DETECTOR			
PREFORMED SAMPLING SYSTEM DETECTOR			

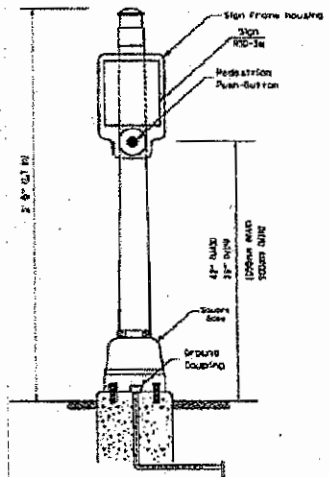
RAILROAD SYMBOLS

	EXISTING	PROPOSED
RAILROAD CONTROL CABINET		
RAILROAD CANTILEVER MAST ARM		
FLASHING SIGNAL		
CROSSING GATE		
CROSSBUCK		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

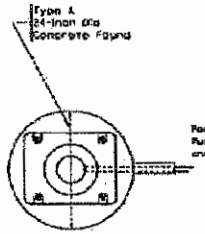
DISTRICT 1
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

SECTION | COUNTY | TOTAL SHEETS | SHEET NO.
CONTRACT NO.



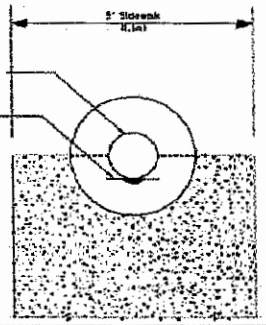
PEDESTRIAN PUSH BUTTON POST
ON TYPE A FOUNDATION

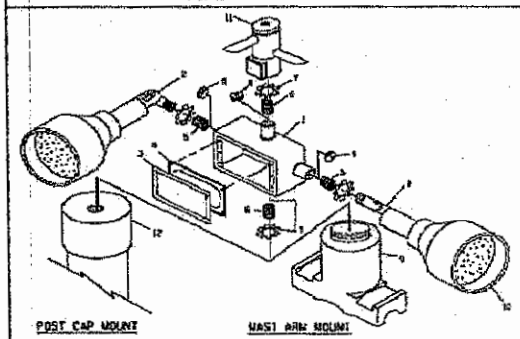
NOT TO SCALE



TOP VIEW

TOP VIEW
with SIDEWALK





POST CAP MOUNT

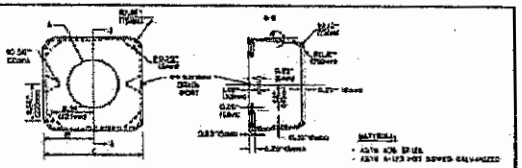
MAST ARM MOUNT

EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION BEACON MOUNTING DETAIL

ITEM NO.	IDENTIFICATION
1	[illegible]
2	LAMP HOLDER AND CONDUIT
3	[illegible]
4	MAGNET CONDUIT CONDUIT
5	[illegible]
6	[illegible]
7	[illegible]
8	[illegible]
9	[illegible]
10	[illegible]
11	DETECTOR UNIT
12	[illegible]

NOTES:

1. ALL ELECTRICAL ITEMS, EXCEPT ITEMS 12 AND 13, SHALL BE BLACKENED OR GALVANIZED.
2. ITEM 11: DETECTOR ITS-1-50 OR EQUIVALENT
   ITEM 12: MAGNEPT CON-2-BACK LAMP SHELL 2 OR EQUIVALENT
   ITEM 13: "SAME-11" SADDLE BRACKET OR EQUIVALENT
3. WHEN POST MOUNTING IS SPECIFIED, ITEM 11 SHALL NOT BE MOUNTED. THE DETECTION UNIT SHALL BE MOUNTED DIRECTLY ON TOP OF THE CAP BY DRILLING AND TAPPING A [illegible] HOLE WITH PIPE THREADS. THE POST CAP SHALL EITHER BE SCREWED TO THE TOP OF THE POST OR A MINIMUM OF 1 EXTERNAL SCREW SHALL BE REQUIRED ON EACH CAP.

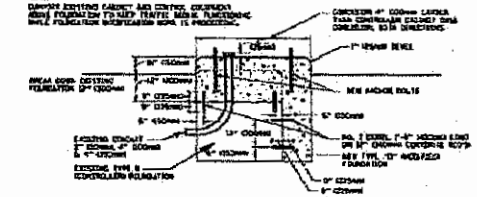


A	B	C	HEIGHT	WEIGHT
VARIES	[illegible]	[illegible]	[illegible]	[illegible]
VARIES	[illegible]	[illegible]	[illegible]	[illegible]
VARIES	[illegible]	[illegible]	[illegible]	[illegible]
VARIES	[illegible]	[illegible]	[illegible]	[illegible]

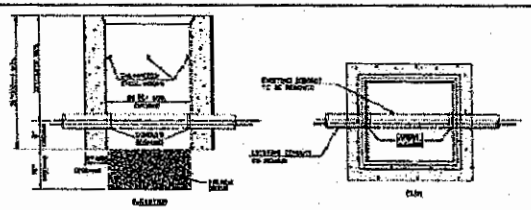
SHROUD

NOTES:

1. DIMENSION "A" IS EQUAL TO THE DIAMETER OF THE MAST ARM POLE AT THE TOP OF THE SHROUD. THE SHROUD SHALL BE SIZED TO THE MAST ARM POLE.
2. THE SUPPLIER SHALL VERIFIED THE ABOVE DIMENSIONS BASED ON MAST ARM REQUIREMENTS.
3. THE HEIGHT OF THE SHROUD SHALL REMOVE THE ANCHOR BOLTS, NUTS AND MAST ARM POLE BASE.



MODIFY EXISTING TYPE "D" FOUNDATION



NOTES:

1. HANDHOLE CONSTRUCTED PER STATE STANDARD [illegible].
2. REMOVAL OF THE EXISTING CONDUIT FROM THE HANDHOLE AND THE INSTALLATION OF THE CONDUIT REQUIRED SHALL BE INCIDENTAL TO THE HANDHOLE.

HANDHOLE TO INTERCEPT EXISTING CONDUIT

[illegible]	DESIGNED - [illegible]	REVISED -	
[illegible]	DRAWN - [illegible]	REVISED -	
[illegible]	CHECKED - [illegible]	REVISED -	
[illegible]	DATE - [illegible]	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

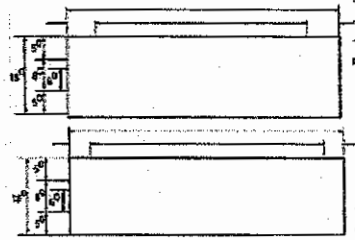
DISTRICT 1
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

SCALE: | SHEET NO. OF TOTAL SHEETS | F.A.P. | TO F.A.P.

F.A.P. NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.

PANEL SIGN DESIGN TYPE 1 OR TYPE 2

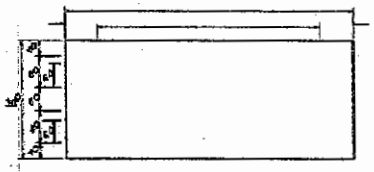


___ Sq. ft. each
___ Sq. Ft. each
___ Required
Design Series ___

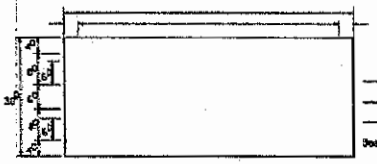
___ Sq. ft. each
___ Sq. Ft. each
___ Required
Design Series ___

NOTE: SIGN DIMENSIONS ARE IN ENGLISH UNITS

PANEL SIGN DESIGN TYPE 2

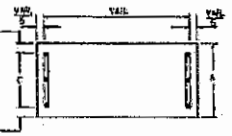


___ Sq. ft. each
___ Sq. Ft. each
___ Required
Design Series ___

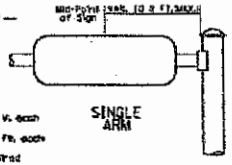


___ Sq. ft. each
___ Sq. Ft. each
___ Required
Design Series ___

SUPPORTING CHANNELS

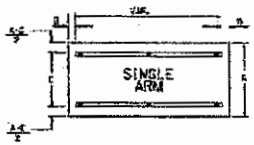


A	B	C
18"	2"	14"

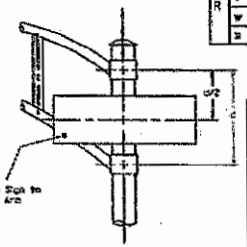


SINGLE ARM

SUPPORTING CHANNELS



A	B	C
18"	2"	18"
30"	2"	24"



DUAL ARM

GENERAL NOTES

1. WHERE MAST ARM MOUNTED STREET NAME SIGNS ARE SPECIFIED, THE MAST ARM ASSEMBLY AND POLES SHALL BE DESIGNED TO SUPPORT THE LOADINGS CAUSED FOR ON STANDARD OFFICIAL OFFICIAL OFFICIAL OFFICIAL AND OFFICIAL AS APPLICABLE. FOR THE CO SIGN PANELS 24"x24" & 24"x30" MOUNTED AS SHOWN. THE DESIGN SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" AS PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS FOR 80 M.P.H. WIND VELOCITY.
2. ALL SIGNS SHALL HAVE A WHITE REFLECTORIZED LEGEND AND BORDER ON A GREEN REFLECTORIZED BACKGROUND, TYPE 4 REFLECTIVE.
3. THE SIGN LENGTH SHALL BE INCREASED IN 6-INCH INCREMENTS, BUT THE OVERALL LENGTH SHALL NOT EXCEED 8'-0".
4. ALL CORNERS SHALL BE 3/4" RADIUS AND LOWER RADIUS SHALL BE 2-1/4".
5. SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM SHALL BE USED FOR ALL SIGNS ATTACHED TO METAL POLES AND POSTS. LOCAL DISTRIBUTORS OF THE SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM ARE:

- JOS. SCHLITZ CO. BRIDGEPORT, WV.
- WESTERN SIGNS INC. ROCKFORD, IL.

SIGN LISTING:
SIGN CHANNEL — PART NUMBER 1400 CHANNEL
SIGN SCREWS — 5/16" x 3/4" HEX HD. #3 SELF TAPPING WITH NEOPRENE WASHER
STRUTS — PART NUMBER 1100 UNIVERSAL CHANNEL CLAMPS WITH STAINLESS STEEL STRUTS

OTHER BRANDS OF MOUNTING HARDWARE ARE ACCEPTABLE, SUBJECT UPON THE REQUIREMENTS HEREIN, AND COMPATIBILITY WITH THE CHANNELMOUNT OF THE SIGNFIX PRODUCT.

SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM
and its uses. See note 5.

Upper Case To Lower Case
Spacing Chart K-E Inch Series "C & D"

	SECOND LETTER																							
	a c d e q o c		b h i s l m p r u		f w		j		s t		v y		x		z			
SERIES	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
A M X	1[illegible]	1[illegible]	1[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
B	1[illegible]	1[illegible]	2[illegible]	2[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
C E G	1[illegible]	1[illegible]	2[illegible]	2[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
O D Q Z	1[illegible]	1[illegible]	2[illegible]	2[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
F	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
H S K N	2[illegible]	2[illegible]	2[illegible]	2[illegible]	2[illegible]	2[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	2[illegible]	2[illegible]	2[illegible]	2[illegible]	2[illegible]
J U	2[illegible]	2[illegible]	2[illegible]	2[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	2[illegible]	[illegible]	2[illegible]
K L	1[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
P	1[illegible]	1[illegible]	1[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
S	1[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
-	1[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
W	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
Y	[illegible]	[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Z	1[illegible]	1[illegible]	2[illegible]	2[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	2[illegible]	[illegible]	2[illegible]

Lower Case To Lower Case
Spacing Chart 6 Inch Series "C & D"

	SECOND LETTER																	
	a c d e q o c		b h i s l m p r u		f w		j		s t		v y		x		z			
SERIES	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
a c n o l i m n q u	1[illegible]	1[illegible]	2[illegible]	2[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
b f k o p s	1[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
c e	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
r	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
t z	1[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
v y	1[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
w	1[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
x	1[illegible]	1[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	1[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]

Number To Number
Spacing Chart 8 Inch Series "C & D"

	SECOND NUMBER																					
	0		1		2		3		4		5		6		7		8		9	
SERIES	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
0 2	1[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2 3 4	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
5	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
6	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
7	1[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]
8	1[illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]	[illegible]	1[illegible]

EXAMPLE: 3 — DENOTES 3"

UPPER AND LOWER CASE LETTER HEIGHTS

LETTERS	5 INCH UPPER CASE LETTERS		8 INCH UPPER CASE LETTERS		LETTERS	6 INCH LOWER CASE LETTERS	
	SERIES		SERIES			SERIES	
	C	D	C	D		C	D
A	3[illegible]	5[illegible]	5[illegible]	6[illegible]	a	3[illegible]	4[illegible]
B	3[illegible]	4[illegible]	4[illegible]	5[illegible]	b	3[illegible]	4[illegible]
C	3[illegible]	4[illegible]	4[illegible]	5[illegible]	c	3[illegible]	4[illegible]
D	3[illegible]	4[illegible]	4[illegible]	5[illegible]	d	3[illegible]	4[illegible]
E	3[illegible]	3[illegible]	4[illegible]	4[illegible]	e	3[illegible]	4[illegible]
F	3[illegible]	3[illegible]	4[illegible]	4[illegible]	f	3[illegible]	3[illegible]
G	3[illegible]	4[illegible]	4[illegible]	5[illegible]	g	3[illegible]	4[illegible]
H	3[illegible]	4[illegible]	4[illegible]	5[illegible]	h	3[illegible]	4[illegible]
I	3[illegible]	4[illegible]	3[illegible]	3[illegible]	i	1[illegible]	1[illegible]
J	3[illegible]	3[illegible]	4[illegible]	5[illegible]	j	2[illegible]	3[illegible]
K	3[illegible]	4[illegible]	4[illegible]	5[illegible]	k	3[illegible]	4[illegible]
L	3[illegible]	3[illegible]	4[illegible]	4[illegible]	l	1[illegible]	1[illegible]
M	3[illegible]	4[illegible]	5[illegible]	6[illegible]	m	6[illegible]	7[illegible]
N	3[illegible]	4[illegible]	4[illegible]	5[illegible]	n	3[illegible]	4[illegible]
O	3[illegible]	4[illegible]	4[illegible]	5[illegible]	o	3[illegible]	4[illegible]
P	3[illegible]	4[illegible]	4[illegible]	5[illegible]	p	3[illegible]	4[illegible]
Q	3[illegible]	4[illegible]	4[illegible]	5[illegible]	q	3[illegible]	4[illegible]
R	3[illegible]	4[illegible]	4[illegible]	5[illegible]	r	2[illegible]	3[illegible]
S	3[illegible]	4[illegible]	4[illegible]	5[illegible]	s	3[illegible]	4[illegible]
T	3[illegible]	3[illegible]	4[illegible]	4[illegible]	t	2[illegible]	3[illegible]
U	3[illegible]	4[illegible]	4[illegible]	5[illegible]	u	3[illegible]	4[illegible]
V	3[illegible]	4[illegible]	4[illegible]	5[illegible]	v	3[illegible]	4[illegible]
W	3[illegible]	4[illegible]	4[illegible]	5[illegible]	w	4[illegible]	4[illegible]
X	4[illegible]	5[illegible]	5[illegible]	6[illegible]	x	4[illegible]	5[illegible]
Y	3[illegible]	4[illegible]	4[illegible]	5[illegible]	y	4[illegible]	5[illegible]
Z	3[illegible]	4[illegible]	4[illegible]	5[illegible]	z	3[illegible]	4[illegible]

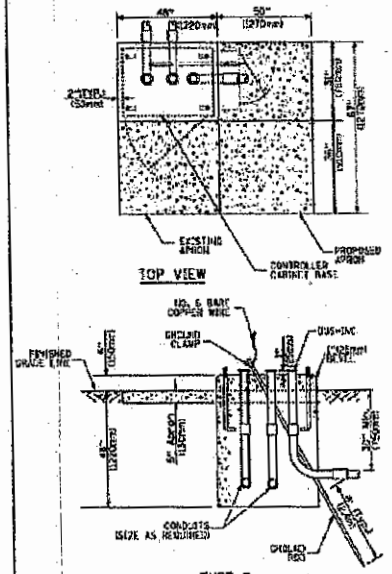
NUMBER	6 INCH SERIES		8 INCH SERIES	
	C	D	C	D
1	1[illegible]	1[illegible]	1[illegible]	2[illegible]
2	3[illegible]	4[illegible]	4[illegible]	5[illegible]
3	3[illegible]	4[illegible]	4[illegible]	5[illegible]
4	3[illegible]	4[illegible]	4[illegible]	5[illegible]
5	3[illegible]	4[illegible]	4[illegible]	5[illegible]
6	3[illegible]	4[illegible]	4[illegible]	5[illegible]
7	3[illegible]	4[illegible]	4[illegible]	5[illegible]
8	3[illegible]	4[illegible]	4[illegible]	5[illegible]
9	3[illegible]	4[illegible]	4[illegible]	5[illegible]
0	3[illegible]	4[illegible]	4[illegible]	5[illegible]

FILE NAME =	USER NAME =	DESIGNED =	REVISED =
		DRAWN =	REVISED =
		CHECKED =	REVISED =
		DATE =	REVISED

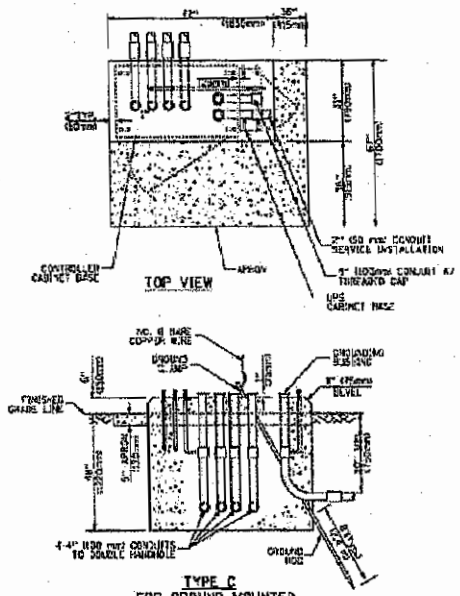
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT 1
MAST ARM MOUNTED STREET NAME SIGNS

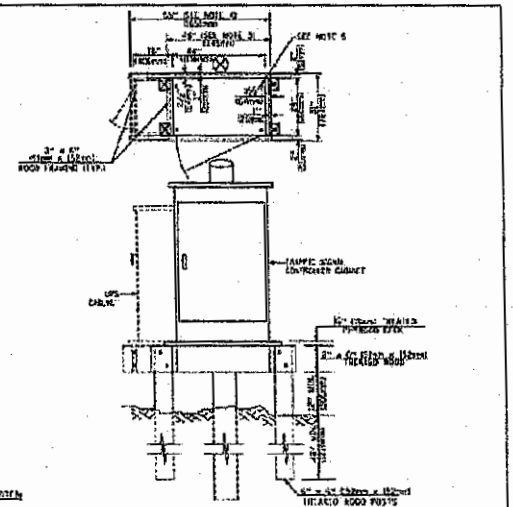
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				



TYPE D
FOR GROUND MOUNTED
CONTROLLER CABINET
AND UPS BATTERY CABINET



TYPE C
FOR GROUND MOUNTED
CONTROLLER CABINET
AND UPS BATTERY CABINET



NOTES

1. BASED ON CONTROLLER CABINET TYPE IV WITH BASE DIMENSIONS OF 30" x 44" (760mm x 1118mm). ADJUST PLATFORM SIZE AS THE CABINET BASE DIMENSIONS DEMAND.
2. BASED ON UNINTERRUPTIBLE POWER SUPPLY CABINET WITH BASE DIMENSIONS OF 16" x 19" (406mm x 483mm). ADJUST PLATFORM SIZE TO FIT CABINET BASE DIMENSIONS DEMAND SUPPLIED.
3. PLATFORM SIZE FOR CONTROLLER CABINET TYPE IV.
4. PLATFORM SIZE FOR CONTROLLER CABINET TYPE IV AND UNINTERRUPTIBLE POWER SUPPLY CABINET.
5. DRILLED HOLES THROUGH THE PLATFORM BASE TO MATCH THE CONTROLLER CABINET BOLT TEMPLATE. FASTEN THE CONTROLLER CABINET TO THE PLATFORM WITH CARRIAGE BOLTS, WASHERS AND NUTS.
6. FASTEN BOLT SUPPORT WOOD FRAMING TO THE WOOD POSTS WITH 2 LAG SCREWS FOR EACH CONNECTION.

TEMPORARY SIGNAL CONTROLLER
WOOD SUPPORT PLATFORM

CABLE SLACK LENGTH	FEET	METER
MAINTENANCE	6.0	2.0
SIGNAL HANDHOLE	15.0	4.0
SIGNAL POST	9.0	3.0
MAST ARM	7.0	2.5
CONTROLLER CABINET	15	3.5
FIBER OPTIC AT CABINET	15.0	5.0
ELECTRIC SERVICE AT CABINET OR SERVICE LOCATION	1.5	0.5
GROUND CABLE (SIGNAL POST, MAST ARM, CABINET)	1.5	0.5
GROUND CABLE (SIGNAL POLE, AND OTHER)	5.0	1.5

CABLE SLACK

VERTICAL CABLE LENGTH	FEET	METER
MAST ARM POLE & MAST ARM MOUNTED SIGNAL HEADS (L = MAST ARM LENGTH - DISTANCE TO SIGNAL HEAD FROM END OF MAST ARM)	20.0+L	6.0+L
BRACKET MOUNTED MAST ARM POLE OR SIGNAL POLES	15.0	4.0
PEDESTRIAN PUSH BUTTON	6.0	2.0
SERVICE INSTALLATION POLE MOUNT TO SERVICE GRADE	13.5	4.1
SERVICE INSTALLATION POLE MOUNT TO GROUND	14.5	4.4
SERVICE INSTALLATION GROUND MOUNT	6.0	2.0
FOUNDATION (SIGNAL POST, MAST ARM POLE, CONTROLLER CABINET, SERVICE-GROUND MOUNT)	3.0	1.0

VERTICAL CABLE LENGTH

FOUNDATION	DEPTH
TYPE A - SIGNAL POST	4'-0" (1.2m)
TYPE C - CONTROLLER W/ UPS	4'-0" (1.2m)
TYPE D - CONTROLLER	4'-0" (1.2m)
SERVICE INSTALLATION GROUND MOUNT	4'-0" (1.2m)
TYPE E - SIGNAL	4'-0" (1.2m)

DEPTH OF FOUNDATION

MAST ARM LENGTH	① FOUNDATION DEPTH	FOUNDATION DIAMETER	SERVICE DIAMETER	QUANTITY OF ANCHORS	SIZE OF ANCHORS
LESS THAN 30' (9.1 m)	10'-0" (3.0 m)	30" (750mm)	24" (600mm)	8	M30
GREATER THAN OR EQUAL TO 30' (9.1 m) BUT LESS THAN 40' (12.2 m)	12'-0" (3.7 m)	32" (810mm)	24" (600mm)	8	M30
GREATER THAN OR EQUAL TO 40' (12.2 m) BUT LESS THAN 50' (15.2 m)	13'-0" (3.9 m)	36" (900mm)	30" (750mm)	12	M36
GREATER THAN OR EQUAL TO 50' (15.2 m) BUT LESS THAN 60' (18.3 m)	13'-0" (3.9 m)	36" (900mm)	30" (750mm)	12	M36
GREATER THAN OR EQUAL TO 60' (18.3 m) BUT LESS THAN 65' (19.8 m)	15'-0" (4.6 m)	36" (900mm)	30" (750mm)	12	M36
GREATER THAN OR EQUAL TO 65' (19.8 m) BUT LESS THAN 70' (21.3 m)	17'-0" (5.2 m)	42" (1050mm)	36" (900mm)	16	M36
GREATER THAN OR EQUAL TO 70' (21.3 m) BUT LESS THAN 80' (24.4 m)	20'-0" (6.1 m)	42" (1050mm)	36" (900mm)	16	M36

NOTES

1. THESE FOUNDATION DEPTHS ARE FOR SITES WHICH HAVE CONSISTS MOSTLY SILT, SANDY CLAY, ETC.) DURING THE LENGTH OF THE SHAFT, WITH AN AVERAGE UNCONFINED COMPRESSIVE STRENGTH OVER 3.5 TSF (350 kpa). THIS STRENGTH MUST 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 DEPTH IF OTHER CONDITIONS ARE ENCOUNTERED.
2. CONSTRUCTION MAST ARM ASSEMBLIES UNDER 65 FEET (19.8 m) USE 36" (900 mm) DIAMETER FOUNDATIONS.
3. CONSTRUCTION MAST ARM ASSEMBLIES UNDER 16 FEET (19.8 m) THROUGH 75 FEET (22.9 m) USE 42" (1050 mm) DIAMETER FOUNDATIONS.
4. FOR MAST ARM ASSEMBLIES WITH DUAL ARMS REFER TO STATE STANDARD 878001.

DEPTH OF MAST ARM FOUNDATIONS, TYPE E

FILE NAME =	USER NAME = Raymond Hauser	DESIGNED = DAS	REVISED =
	STANDARD =	DRAWN = DAS	REVISED =
	F.S.E. VOLT. - AMPS = / m	CHECKED = DAS	REVISED =
	PLOT DATE = 1/5/2012	DATE = 10/20/09	REVISED =

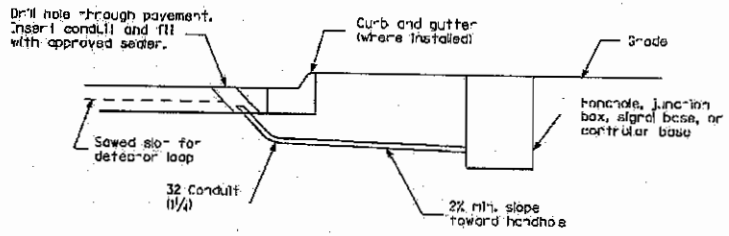
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT 1
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

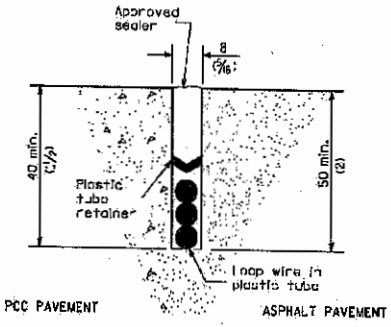
ILL.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		

SCALE | SHEET NO. 5 OF 6 SHEETS | STA. | TO STA.

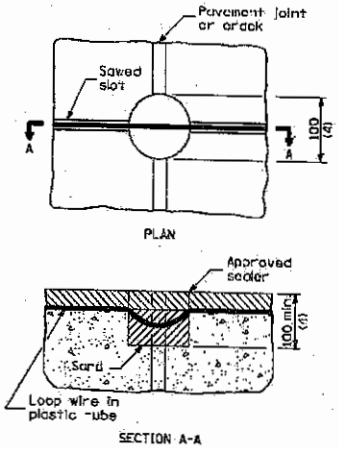
342



DETECTOR LOOP LEAD-IN

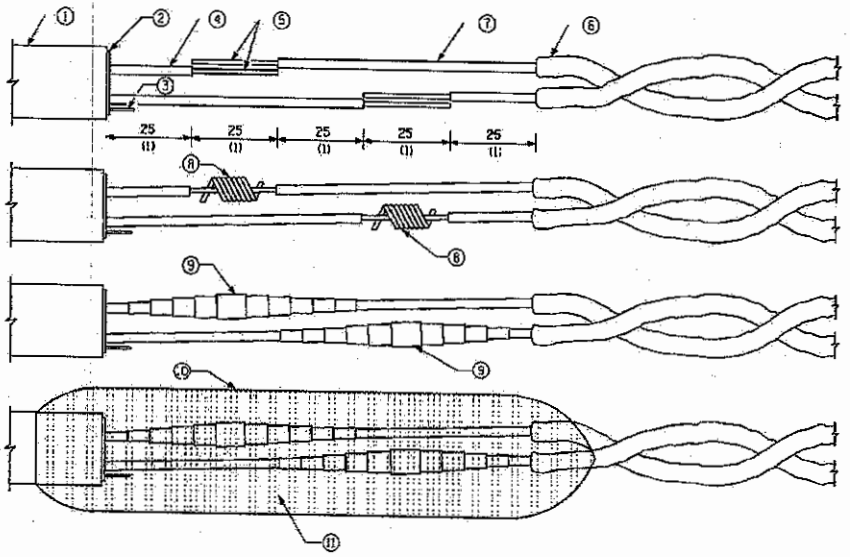


DETECTOR LOOP INSTALLATION



NOTE
Loop wire shall allow saw cut to bottom, forming slack section at joint.

DETECTOR LOOP AT PAVEMENT JOINT OR PAVEMENT CRACK



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 splice
⑩ = Rigid mold
⑪ = Waterproof and dielectric resin

LOOP WIRE AND LEAD-IN CABLE SPLICE

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation
APPROVED January 1, 1997
ENGINEER OF OPERATIONS
APPROVED January 1, 2002
ENGINEER OF DESIGN AND ENVIRONMENT

DATE	REVISIONS
1-1-02	Renum. Standard 886001.
1-1-97	Renum. Standard 2370-2.

DETECTOR LOOP INSTALLATIONS

STANDARD 886001

LOOP DETECTOR NOTES

1. EACH PAIR OF LOOP WIRES SHALL BE PLACED IN A SEPARATE EMPTY COILABLE NONMETALLIC CONDUIT FROM THE EDGE OF PAVEMENT TO THE HANDHOLE. SPACING BETWEEN THE HOLES DRILLED IN THE PAVEMENT SHALL NOT BE LESS THAN 6" (150 mm). EMPTY COILABLE NONMETALLIC CONDUIT SHALL BE INCLUDED IN THE COST OF THE LOOP WIRE.

2. THE NUMBER OF LOOP TURNS SHALL BE AS RECOMMENDED BY THE AMPLIFIER MANUFACTURER. ALL ADJACENT SIDES OF THE LOOPS SHALL BE INSTALLED IN SUCH A WAY THAT THE CURRENT FLOW IS IN THE SAME DIRECTION TO REINFORCE ITS MAGNETIC FIELDS FOR SMALL VEHICLE DETECTION.

3. EACH LOOP LEAD-IN SHALL BE IDENTIFIED AND PERMANENTLY TAGGED IN THE HANDHOLE. EACH LEAD-IN CABLE TAG SHALL INDICATE THE LOCATION OF THE LOOP, LOOP ROTATION (CLOCKWISE/COUNTERCLOCKWISE), LOOP LEAD-IN DIRECTION (IN OR OUT), LOOP CABLE NUMBER AND LOCATION IN CABINET, AND NUMBER OF TURNS IN THE DETECTOR LOOPS (IN WATER PROOF INK AS INDICATED ON THE DISTRICT 1 STANDARD TRAFFIC SIGNAL DESIGN DETAIL). THE CONTRACTOR SHALL MARK LOOP LOCATIONS ON RECORD DRAWINGS AND PRESENT TO THE ENGINEER AFTER FINAL INSPECTION. LOOPS SHALL BE MARKED BY LANE AND LOOP NUMBER. SEE DETAIL BELOW.

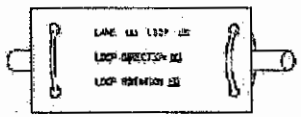
4. ALL LOOP CABLE SHALL BE FASTENED WITH PLASTIC TIE WRAP TO THE HANDHOLE PIPES.

5. IN ASPHALT PAVEMENT, LOOPS SHOULD BE PLACED IN THE BINDER AND DIVENOLES MARKED AT THE CURB WITH A SAW-CUT. THE SAW-CUT SHALL BE CUT IN ACCORDANCE WITH LOCAL AND E.P.A. DUST CONTROL REQUIREMENTS. DETECTOR LOOPS SHALL NOT BE INSTALLED IN WET CONDITIONS AND THE SAW-CUTS MUST BE FREE OF DEBRIS AND RESIDUE SUCH AS DUST AND WATER WHICH IS TO BE ACHIEVED BY THE USE OF COMPRESSED AIR, WIRE BRUSHING AND HEAT DRYING ACCORDING TO SEALANT MANUFACTURER REQUIREMENTS. THE DETECTOR WIRE SHALL BE HELD IN PLACE BY THE USE OF FOAM WEDGES. WEDGES SHALL BE SPACED NO MORE THAN 18" (450 mm) APART.

6. LOOP SPLICES SHALL BE SOLDERED USING A SOLDERING IRON. BLOW TORCHES OR OTHER DEVICES WHICH OXIDIZE COPPER CABLE SHALL NOT BE ALLOWED FOR SOLDERING OPERATIONS. SEE DETAIL BELOW RIGHT.

7. PREFORMED DETECTOR LOOPS SHALL BE USED, AS SHOWN ON THE PLANS, WHERE NEW CONCRETE PAVEMENT IS PROPOSED. THE INSTALLATION OF PREFORMED LOOPS SHALL BE IN ACCORDANCE WITH THE DISTRICT 1 SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER.

LOOP LEAD-IN CABLE TAG

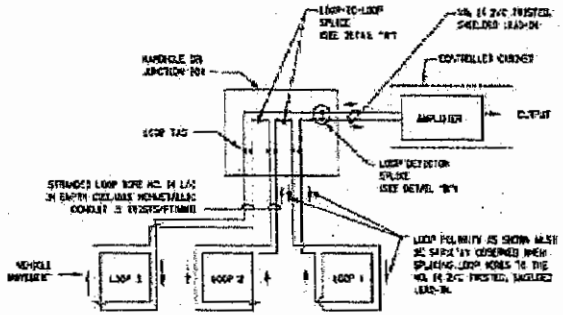


A. LANE 1 IS THE LANE CLOSEST TO THE CONTROLLING OF THE ROADWAY

B. LOOP # IS THE LOOP IN THE LANE CLOSEST TO THE INTERSECTION

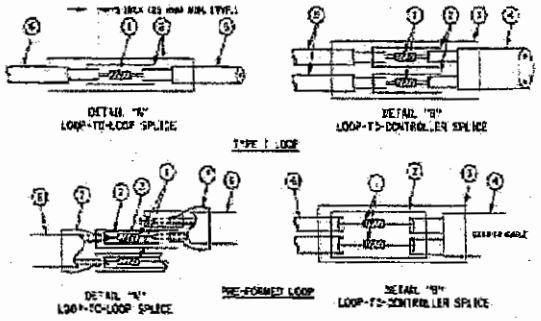
C. LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".

D. LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.



DETECTOR LOOP WIRING SCHEMATIC

- LOOPS SHALL BE SPLICE FREE.
- SAW-CUTS SHALL BE A MINIMUM WIDTH OF 0.250" (6 mm).
- SAW-CUT DEPTHS SHALL BE 2" (75 mm) IN AC OR CONCRETE. THE SAW-CUT DEPTH SHALL BE TO THE TOP OF THE REINFORCEMENT.
- LOOP CORNERS SHALL BE DRILLED WITH A 2" (50 mm) DIAMETER CORE.



LOOP DETECTOR SPLICE

1. WESTERN UNION SPLICE. SOLDERED WITH ROSIN CORE FLUX. ALL EXPOSED SURFACES OF THE SOLDER SHALL BE SMOOTH.
2. HEAT SHRINK TUBE, MINIMUM LENGTH 3" (75 mm), UNDERWATER GRADE.
3. HEAT SHRINK TUBE, MINIMUM LENGTH 6" (150 mm), UNDERWATER GRADE.
4. NO. 14 2/C TWISTED, SHIELDED CABLE.
5. LOOP CONDUCTOR WITH FLEXIBLE PLASTIC DUCT.
6. PRE-FORMED LOOP.
7. 2/C POLYOLEFIN 2 CONDUCTOR SHRINKOFF SERIES, TYPE CSR-2 OR APPROVED EQUAL.

FILE NAME =	USER NAME =	DESIGNED -	REVISED -
		CHECKED -	REVISED -
		DRAWN -	REVISED -
		DATE =	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

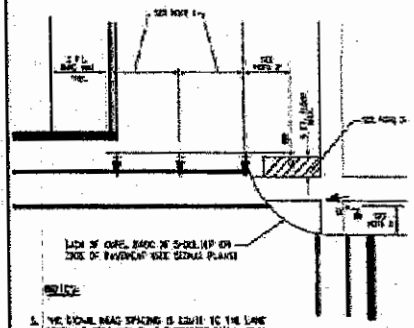
DISTRICT ONE
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.

TRAFFIC SIGNAL MAST ARM AND SIGNAL POST

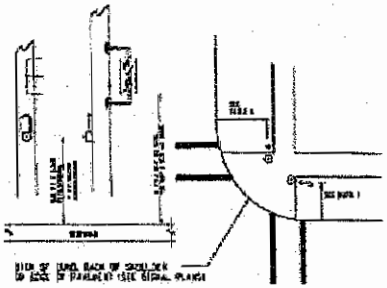
MAST ARM MOUNTED SIGNALS IN EXISTING, PROPOSED OR FUTURE SIDEWALK/BICYCLE PATH AREA, INTERSECTION SHOWN WITH PEDESTRIAN SIGNALS AND PEDESTRIAN PUSHBUTTON DETECTORS.



NOTES:

1. THE SIGNAL HEAD SPACING IS EQUAL TO THE LANE WIDTH OR AS SHOWN ON THE TRAFFIC SIGNAL PLAN.
2. REFER TO THE TRAFFIC SIGNAL EQUIPMENT OFFSET TABLE.
3. PROVIDE A LEVEL ALL-WEATHER SURFACE CONCRETE SIDEWALK, ASPHALT BICYCLE PATH SURFACE OR MATCHING MATERIAL TO THE ADJACENT SURFACE UP TO THE MAST ARM SHAFT OR THE SIGNAL POST.
4. THE FACE OF THE PEDESTRIAN PUSHBUTTON SHALL BE PARALLEL TO THE CROSSWALK TO BE USED.
5. THE LOCATION AND INSTALLATION OF PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS SHALL MEET THE REQUIREMENTS OF THE MUTCD AND INFORMATION FOUND IN THE "AMENDMENT WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES".

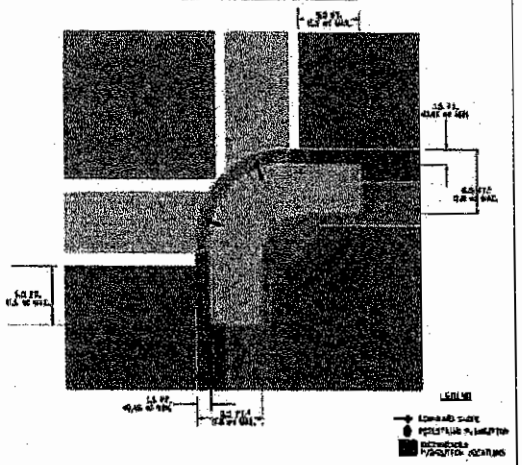
PEDESTRIAN SIGNAL POST AND PEDESTRIAN PUSH-BUTTON POST



NOTES:

1. REFER TO THE TRAFFIC SIGNAL EQUIPMENT OFFSET TABLE.
2. PROVIDE A LEVEL ALL-WEATHER SURFACE CONCRETE SIDEWALK, ASPHALT BICYCLE PATH SURFACE OR MATCHING MATERIAL TO THE ADJACENT SURFACE UP TO THE PEDESTRIAN SIGNAL POST OR THE PEDESTRIAN PUSHBUTTON POST.
3. THE FACE OF THE PEDESTRIAN PUSHBUTTON SHALL BE PARALLEL TO THE CROSSWALK TO BE USED.
4. THE LOCATION AND INSTALLATION OF PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS SHALL MEET THE REQUIREMENTS OF THE MUTCD AND INFORMATION FOUND IN THE "AMENDMENT WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES".

RECOMMENDED PUSHBUTTON LOCATIONS



1. WHERE THERE ARE CONSTRAINTS THAT MAKE IT IMPRACTICAL TO PLACE THE PEDESTRIAN PUSHBUTTON BETWEEN 42 FT (12.8 M) AND 6 FT (1.8 M) FROM THE EDGE OF THE CURB, SHOULDER, OR PAVEMENT, IT SHOULD NOT BE FURTHER THAN 10 FT (3 M) FROM THE EDGE OF CURB, SHOULDER, OR PAVEMENT.
2. WHERE THERE ARE CONSTRAINTS ON A PARTICULAR CORNER THAT MAKE IT IMPRACTICAL TO PROVIDE THE 10 FT (3 M) SEPARATION BETWEEN THE TWO PEDESTRIAN PUSHBUTTONS, THE PUSHBUTTONS MAY BE PLACED CLOSER TOGETHER OR ON THE SAME POLE.

NOTES:

1. PEDESTRIAN SIGNAL HEADS SHALL BE MOUNTED WITH THE BOTTOM OF THE SIGNAL HOUSING BETWEEN BRACKETS NOT LESS THAN 8 FT (2.4 M) OR NOT MORE THAN 10 FT (3 M) ABOVE TERRAIN LEVEL. THE SHALL BE POSITIONED AND ADJUSTED TO PROVIDE MAXIMUM VISIBILITY AS FOR SUPPORTED BY THE NEIGHBORING CROSSWALK.
2. THE BOTTOM OF THE SIGNAL HOUSING AND SIGNAL BRACKETS OF A VEHICULAR SIGNAL FACE THAT IS NOT LOCATED OVER A SIDEWALK SHALL BE AT LEAST 8 FT (2.4 M) AND NOT MORE THAN 15 FT (4.6 M) ABOVE THE SIDEWALK OR, IF THERE IS NO SIDEWALK, ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY.
3. THE BOTTOM OF THE SIGNAL HOUSING AND ANY RELATED ATTACHMENTS TO A SIGNAL FACE LOCATED OVER ANY PORTION OF A PEDESTRIAN SIGNAL SHALL BE ACCORDING TO CURRENT STATE STANDARDS BETWEEN 8 FT (2.4 M) AND 10 FT (3 M) ABOVE THE PAVEMENT.
4. THE BOTTOM OF THE TEMPORARY SIGNAL WIRE MOUNTED SIGNAL HOUSING AND ANY RELATED ATTACHMENTS TO A SIGNAL FACE LOCATED OVER ANY PORTION OF A ROADWAY SHALL BE ACCORDING TO CURRENT STATE STANDARDS BETWEEN 18 FT (5.5 M) AND 22 FT (6.7 M) ABOVE THE HIGHEST POINT OF PAVEMENT.
5. THE TOP OF THE SIGNAL HOUSING OF A SIGNAL FACE LOCATED OVER ANY PORTION OF A ROADWAY SHALL NOT BE MORE THAN 25 FT (7.6 M) ABOVE THE PAVEMENT.

TRAFFIC SIGNAL EQUIPMENT OFFSET

TRAFFIC SIGNAL EQUIPMENT	COMBINATION CONCRETE CURB AND GUTTER, MINIMUM DISTANCE FROM BACK OF CURB TO CENTERLINE OF FOUNDATIONS	SHOULDER/NON-CURBED AREA MINIMUM DISTANCE FROM EDGE OF PAVEMENT TO CENTERLINE OF FOUNDATIONS
TRAFFIC SIGNAL MAST ARM POLE	4 FT (1.2 M)	SHOULDER WIDTH + 2 FT (0.6 M), MINIMUM 10 FT (3.0 M)
TRAFFIC SIGNAL POST	4 FT (1.2 M)	SHOULDER WIDTH + 2 FT (0.6 M), MINIMUM 10 FT (3.0 M)
PEDESTRIAN SIGNAL POST	4 FT (1.2 M)	SHOULDER WIDTH + 2 FT (0.6 M), MINIMUM 10 FT (3.0 M)
PEDESTRIAN PUSHBUTTON POST	4 FT (1.2 M)	SHOULDER WIDTH + 2 FT (0.6 M), MINIMUM 10 FT (3.0 M)
TEMPORARY WOOD POLE	8 FT (2.4 M)	SHOULDER WIDTH + 2 FT (0.6 M), MINIMUM 10 FT (3.0 M)
CONTROLLER CABINET	6 FT (1.8 M) MINIMUM DISTANCE SEE NOTE 2	SHOULDER WIDTH + 5 FT (1.5 M), MINIMUM 16 FT (4.9 M) SEE NOTE 3
SERVICE INSTALLATION GROUND MOUNT	6 FT (1.8 M) MINIMUM DISTANCE SEE NOTE 2	SHOULDER WIDTH + 5 FT (1.5 M), MINIMUM 16 FT (4.9 M) SEE NOTE 3

NOTES:

1. CONTACT THE IDOT TRAFFIC SIGNAL MAINTENANCE AND OPERATIONS ENGINEER FOR ASSISTANCE IN LOCATING THE TRAFFIC SIGNAL EQUIPMENT WHEN THERE ARE CONFLICTS WITH OFFSETS OF THE MINIMUM OFFSET DISTANCES CANNOT BE MET.
2. MINIMUM DISTANCE FROM THE BACK OF CURB TO THE NEAREST SIDE OF THE FOUNDATION.
3. MINIMUM DISTANCE FROM THE EDGE OF PAVEMENT TO THE NEAREST SIDE OF THE FOUNDATION.
4. ANY CHANGES TO THE OFFSETS OF THE FOUNDATIONS FROM THE MINIMUM DISTANCES LISTED IN THE "TRAFFIC SIGNAL EQUIPMENT OFFSET" CHART AND THE TRAFFIC SIGNAL INSTALLATION PLAN COULD AFFECT THE PLACEMENT OF THE SIGNAL HEADS, PEDESTRIAN SIGNAL HEADS AND THE PEDESTRIAN PUSHBUTTONS. THE SIGNAL HEAD PLACEMENT ON THE MAST ARM SHALL REMAIN AS PER THE TRAFFIC SIGNAL INSTALLATION PLAN AND THE "TRAFFIC SIGNAL MAST ARM AND SIGNAL POST" DETAIL ABOVE. THE PROPOSED MAST ARM LENGTHS MAY NEED TO BE REVISED TO MEET THE ABOVE REQUIREMENTS. THE PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS MUST MEET THE REQUIREMENTS UNDER THE DETAILS ON THIS SHEET.

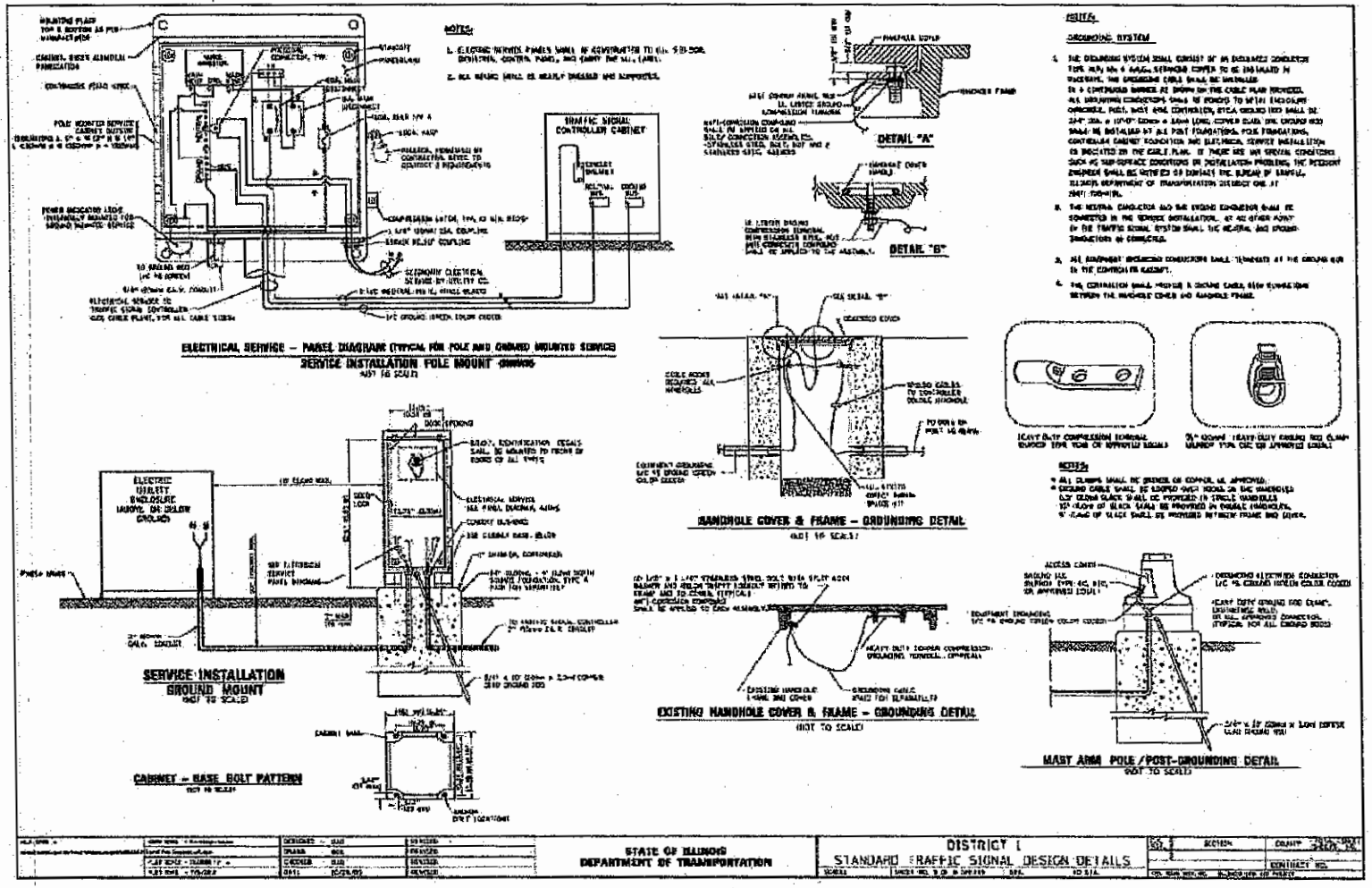
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

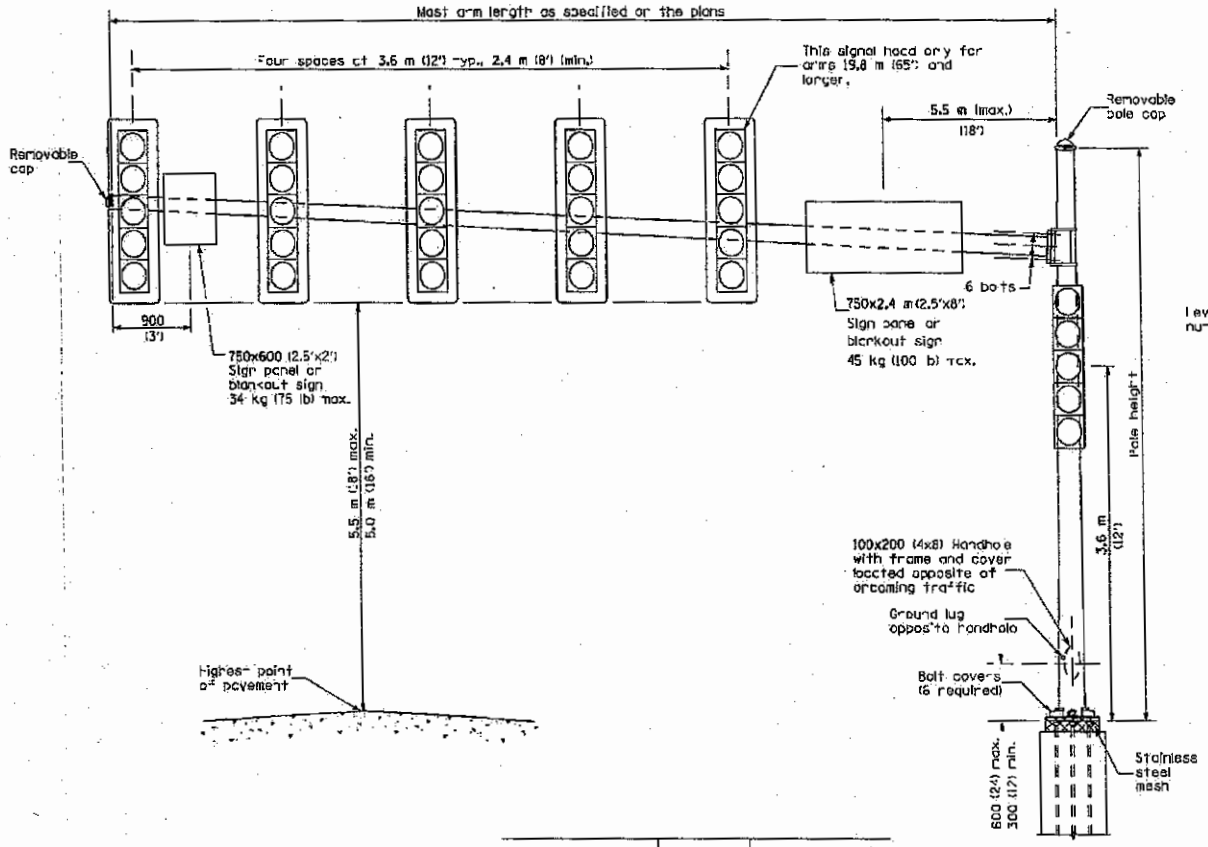
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

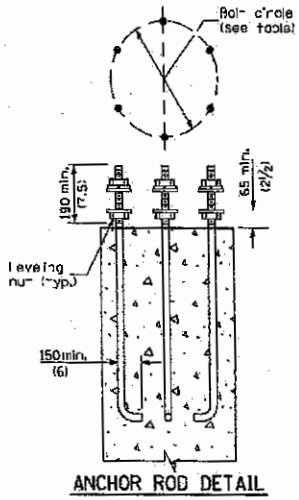
DISTRICT 1
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

DATE	REVISION	COUNTY	TOTAL SHEET	SHEET NO.

CONTRACT NO.


ELECTRICAL SERVICE – PANEL DIAGRAM (TYPICAL FOR POLE AND GROUND MOUNTED SERVICE)
SERVICE INSTALLATION POLE MOUNT
NOT TO SCALE
TRAFFIC SIGNAL CONTROLLER CABINET
DETAIL "A"
DETAIL "B"
NOTES:
GROUNDING SYSTEM
HANDHOLE COVER & FRAME – GROUNDING DETAIL
NOT TO SCALE
ELECTRIC UTILITY ENCLOSURE (MOUNT ON BELOW GROUND)
SERVICE INSTALLATION GROUND MOUNT
NOT TO SCALE
EXISTING HANDHOLE COVER & FRAME – GROUNDING DETAIL
NOT TO SCALE
MAST ARM POLE/POST-GROUNDING DETAIL
NOT TO SCALE
CABINET – BASE BOLT PATTERN
NOT TO SCALE
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DISTRICT 1
STANDARD TRAFFIC SIGNAL DESIGN DETAILS





MAST ARM LENGTH	BOLT CIRCLE	ANCHOR ROD SIZE
17.1 m thru 19.8 m (56' thru 64')	610 (24)	44 x 2.10 m (1.75 x 84)
20.1 m thru 22.9 m (65' thru 75')	686 (27)	51 x 2.30 m (2.00 x 90)

GENERAL NOTES

Signal heads, sign panels, and other attachments are shown for minimum design loading purposes only. Each signal head shall weigh 36 kg (80 lb) and have a projected area of 1.37 sq m (14.7 sq ft).

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

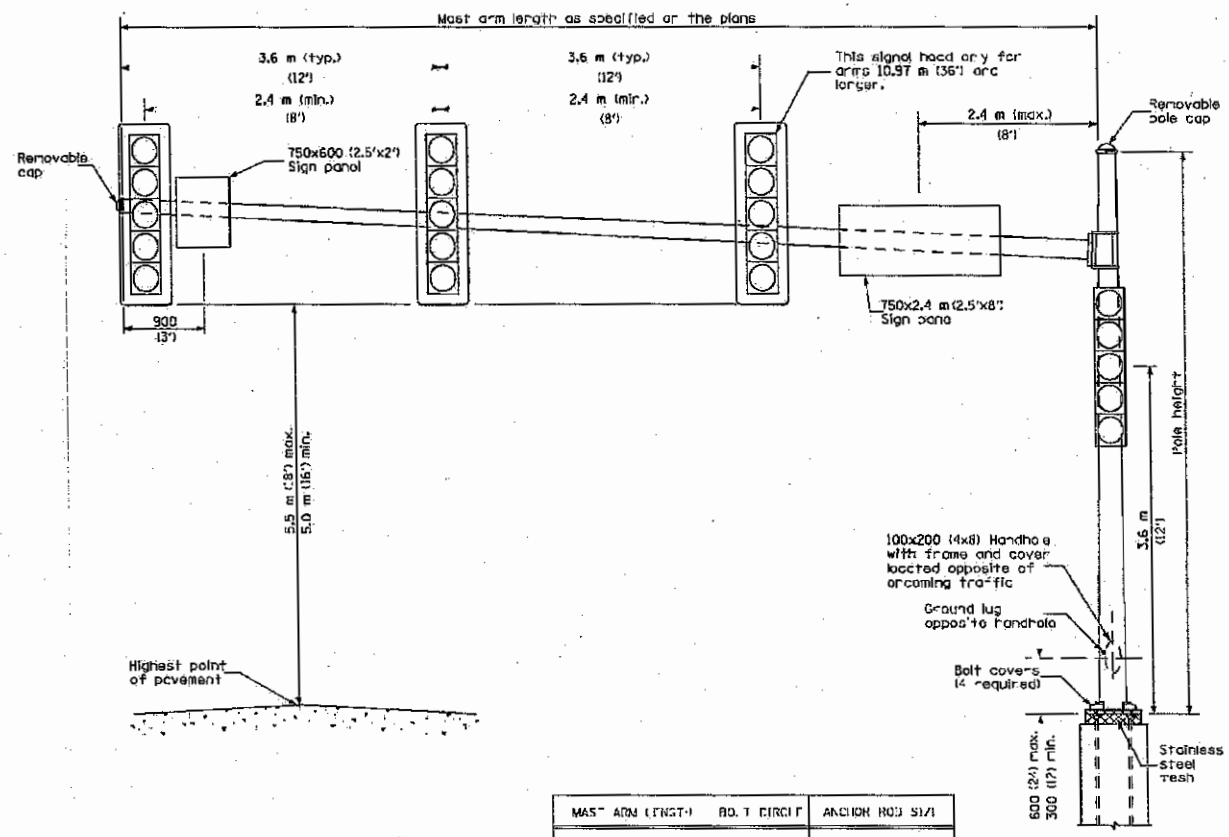
APPROVED: January 4, 2008
ENGINEER OF OPERATIONS

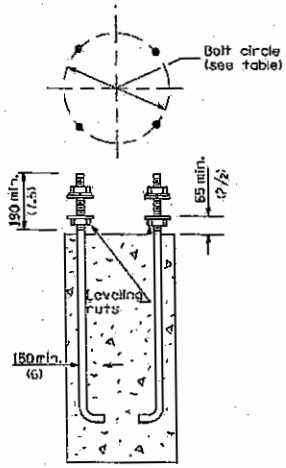
APPROVED: January 4, 2008
ENGINEER OF DESIGN AND ENVIRONMENT

DATE	REVISIONS
1-1-08	New standard.

STEEL MAST ARM ASSEMBLY AND POLE 56' THROUGH 75'

STANDARD 877002





ANCHOR ROD DETAIL

MAST ARM LENGTH	BOLT CIRCLE	ANCHOR ROD SIZE
4.87 m thru 6.10 m (16' thru 20')	380 (15)	38 x 1.5 m (1.5 x 60)
6.71 m thru 9.14 m (22' thru 30')	450 (18)	38 x 1.5 m (1.5 x 60)
9.75 m thru 12.20 m (32' thru 40')	450 (18)	44 x 2.10 m (1.75 x 84)
12.80 m thru 16.80 m (42' thru 55')	535 (21)	44 x 2.10 m (1.75 x 84)

GENERAL NOTES

Signal heads, sign panels, and other attachments are shown for minimum design loading purposes only. Each signal head shall weigh 36 kg (80 lb) and have a projected area of 1.37 sq m (14.7 sq ft).

All dimensions are in millimeters (inches) unless otherwise shown.

DATE	REVISIONS
1-1-08	Renamed standard.
1-1-05	Revised size of sign panel and location of handhole.

Illinois Department of Transportation

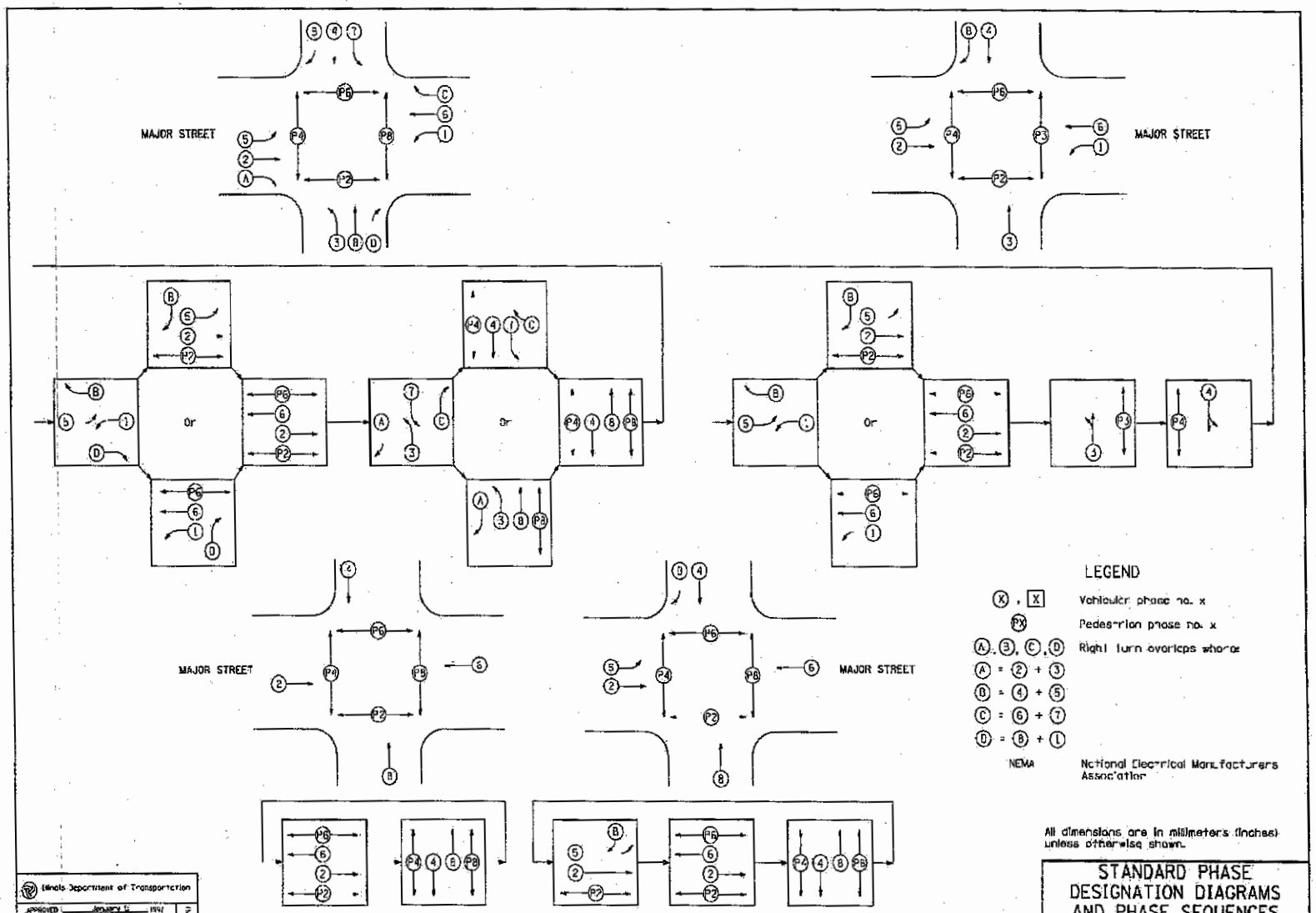
APPROVED January 1, 2008
ENGINEER OF OPERATIONS

APPROVED January 1, 2008
ENGINEER OF DESIGN AND ENVIRONMENT

REVISED 1-1-02

STEEL MAST ARM ASSEMBLY AND POLE 16' THROUGH 55'

STANDARD 877001-03



PHASE DESIGNATION DIAGRAMS AND CORRESPONDING PHASE SEQUENCES

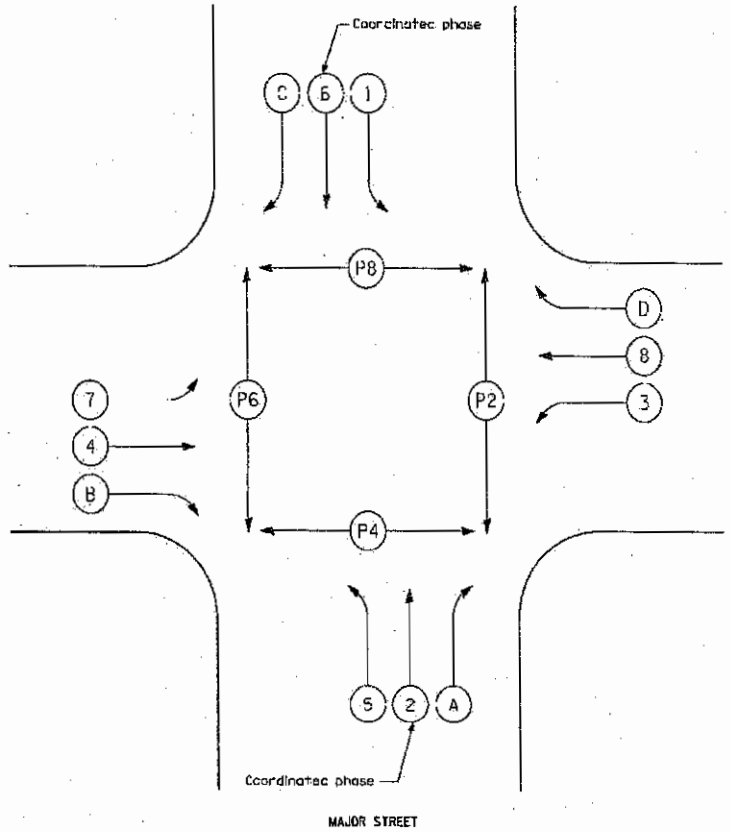
Illinois Department of Transportation

APPROVED January 5, 1997
ENGINEER OF OPERATIONS

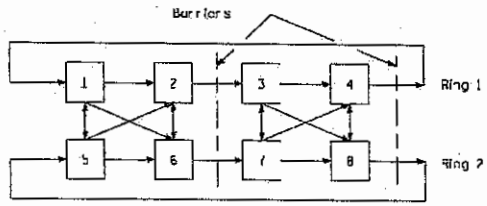
APPROVED January 6, 1997
ENGINEER OF DESIGN AND ENVIRONMENT

STANDARD PHASE DESIGNATION DIAGRAMS AND PHASE SEQUENCES
(Sheet 2 of 2)

STANDARD 857001



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)	High turn overlaps where:
(A) = (2) + (3)	
(B) = (4) + (5)	
(C) = (6) + (7)	
(D) = (8) + (1)	
NEMA	National Electrical Manufacturers Association

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 1997
ENGINEER OF OPERATIONS

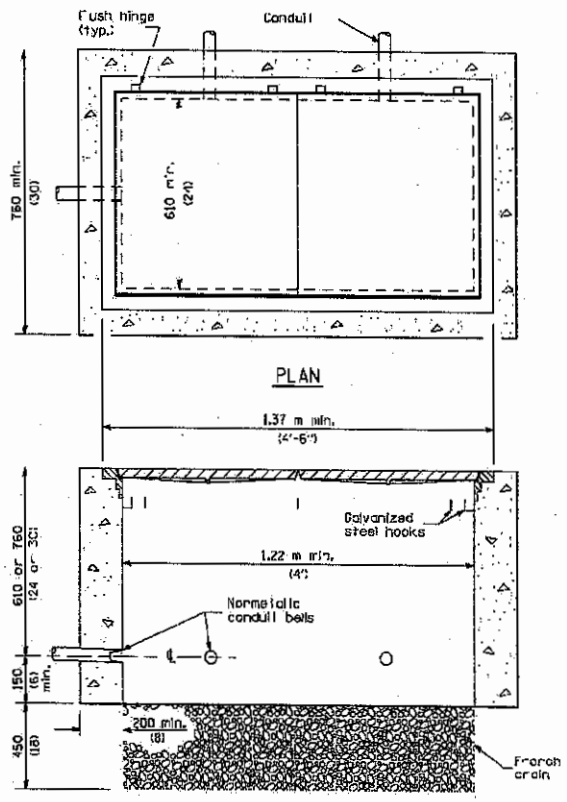
APPROVED January 1, 1997
ENGINEER OF DESIGN AND ENVIRONMENT

DATE	REVISIONS
1-1-97	Renum. Standard 2393-2.
2-1-95	Totally revised.

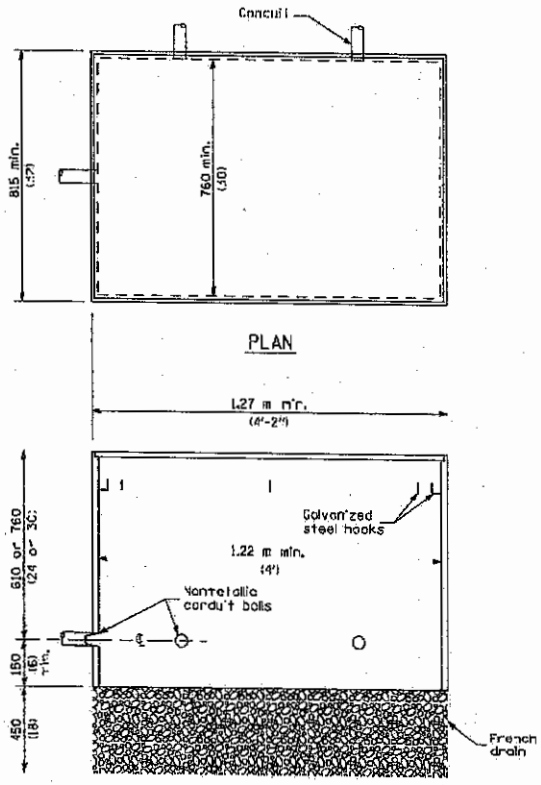
STANDARD PHASE DESIGNATION DIAGRAMS AND PHASE SEQUENCES

(Sheet 1 of 2)

STANDARD 857001



PORTLAND CEMENT CONCRETE



COMPOSITE CONCRETE

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2007
ENGINEER OF OPERATIONS

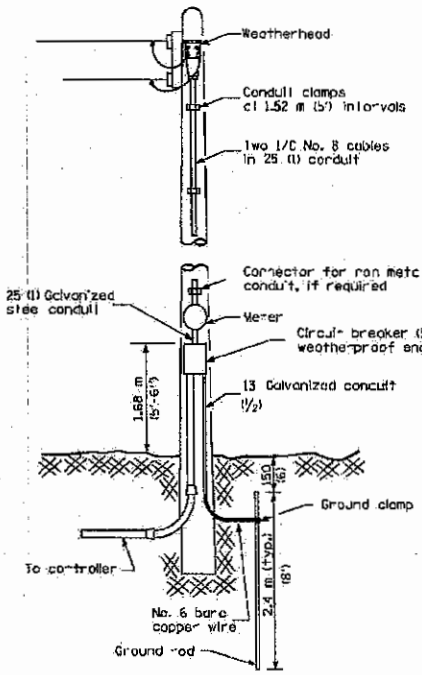
APPROVED January 1, 2007
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

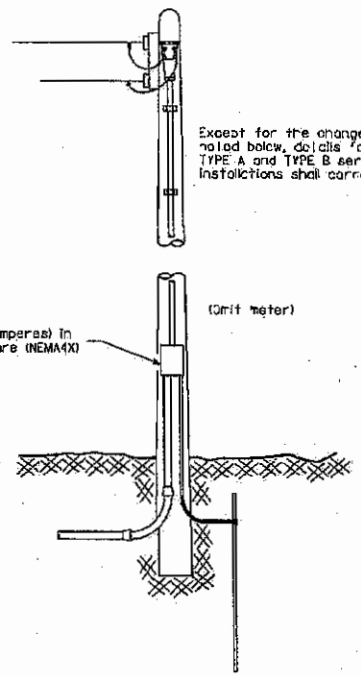
DATE	REVISIONS
1-1-07	Revised composite conc. handhole. Rem. weights of frames and covers.
1-1-97	Rerum. Standard 2365-2.

DOUBLE HANDHOLES

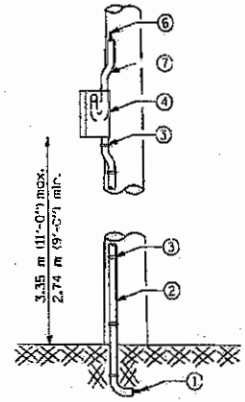
STANDARD 814006-01



TYPE A



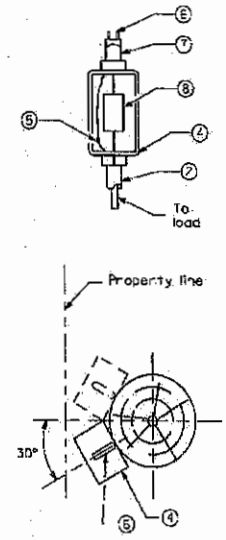
TYPE B



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 32 (1 1/4) 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 millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

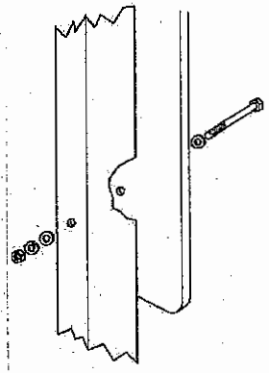
APPROVED January 1, 2002
ENGINEER OF OPERATIONS

APPROVED January 1, 2002
ENGINEER OF DESIGN AND ENVIRONMENT

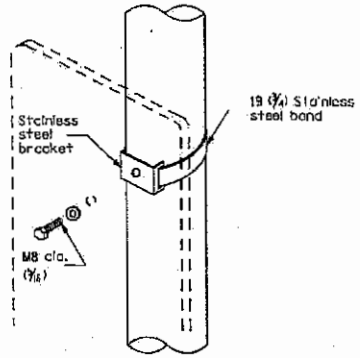
DATE	REVISIONS
1-1-02	Renum. Standard 866001.
1-1-97	Renum. Standard 2373-1.

ELECTRICAL SERVICE INSTALLATION DETAILS

STANDARD 805001

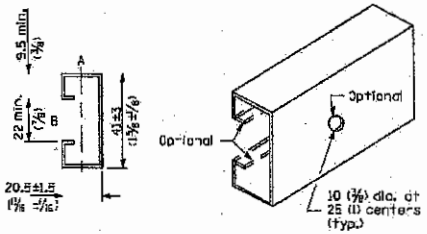


Sign panel 900 (36) wide or less

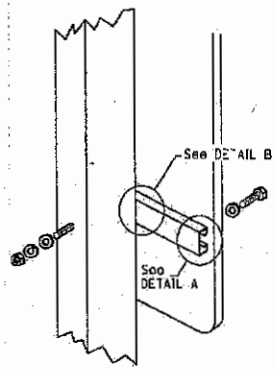


Sign panel 900 (36) wide or less

Section modulus (minimum)	Axis A	Axis B
Steel	819 mm³ (0.050 in.³)	1720 mm³ (0.105 in.³)
Aluminum	2458 mm³ (0.150 in.³)	5162 mm³ (0.315 in.³)

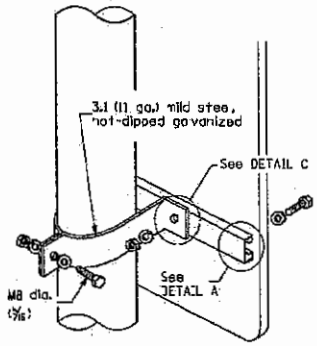


SUPPORTING CHANNEL DETAILS



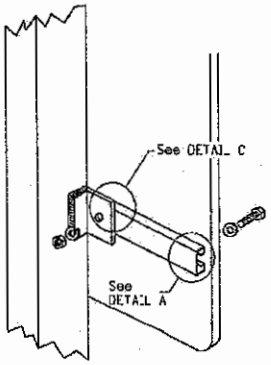
Sign panel over 900 (36) wide

WOOD OR TELESCOPING STEEL POSTS



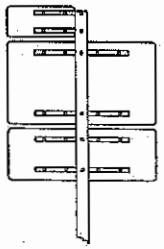
Sign panel over 900 (36) wide

LIGHT OR SIGNAL STANDARDS

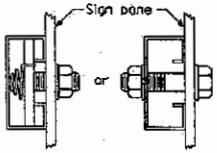


BREAKAWAY STEEL TUBING POSTS

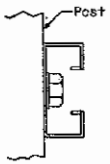
(All sign panel sizes)



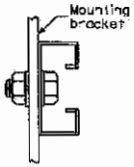
ROUTE MARKER ASSEMBLY



DETAIL A



DETAIL B



DETAIL C

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 1997
ENGINEER OF OPERATIONS
APPROVED January 1, 1997
ENGINEER OF DESIGN AND ENVIRONMENT

DATE	REVISIONS
1-1-97	Renum. Standard 2319-6.
2-1-95	Moved G. N. to Specs.
	Added metric.

SIGN PANEL MOUNTING DETAILS

STANDARD 720001

ITEM B STREET AND ROADWAY LIGHTING SYSTEM ROUTINE MAINTENANCE

In addition to the requirements listed above under ROUTINE MAINTENANCE, the following shall be part of this item:

1. Report in writing to the Engineer, lamp and circuit outages and damaged, broken or defective components within two working days after each two week inspection.
2. Repair or replace any part or parts of the system damaged from any cause whatsoever, except as provided for under Item BU.
3. Clean all types of luminaries ONCE EVERY TWELVE (12) MONTHS in accordance with MAINTENANCE SCHEDULES.
4. Maintain in stock at all times sufficient assorted new Light Standards, Transformer Bases, Couplings, Mast Arms, Luminaires, Lamps, Breakers, Fuses, Switches, Timers, Relays, Splicing, Materials, Cable, Cable-In-Duct, Conduits and Fittings, and other parts in order that all malfunctions from any cause whatsoever, can be temporarily or permanently corrected, and all defective or damaged components, except Light Standard Foundations, can be replaced.
5. Replace all burned out lamps, faulty ballasts and broken glassware not later than seven (7) working days following discovery or notification. Determine the cause of the malfunction unless it was caused by a burned out lamp, without energizing the light from the normal source
6. Provide immediate corrective action to restore service involving an outage of (1) 3 or more lights on a circuit, (2) 3 or more successive lights in a row, (3) 3 or more successive lights on a roadway, or (4) lights at critical locations. Response time is 1 Hour for all calls and service restoration time is 4 hours, except for cable problems which is 24 hours. Permanent repairs to be in 7 calendar days except for cable repairs which have 21 calendar days. Only for notifications of cable failure after December 1, when frozen ground conditions restrict permanent repair work, will temporary repairs will be acceptable. In all cases where temporary repairs were made during the winter months, permanent repairs shall be completed by May 30. The Contractor shall document on Tickets all cases where temporary aerial cable was installed (temporary ground laid cable or attachment to the metal structures is not allowed).
7. After responding to a trouble call, the patrolman must record the purpose of call and action taken for temporary service restoration. The purpose of recording into the log sheet is to reduce repetitive calls caused by the same component. If there is a more than one service call due to the same component within a month, the Contractor shall replace that component with new one instead of making temporary repairs.
8. Standard (non-davit) round-tapered, unpainted conventional aluminum light poles of different manufacture than the originally –installed pole may be used, but shall otherwise be in conformance with approved submittal requirements. Standard light pole mast arms shall be replaced with the same length, diameter, and shape as the original installation or as modified by plan. All resets of light poles from knockdowns or new installs shall use a transformer base (T-base) not a breakaway coupling. The replacement pole shall meet UL standard.

9. Light Pole Foundation: It is the Contractor's responsibility to be knowledgeable of safety requirements for light pole foundation construction and current approved height limitations for base extensions above the adjacent grade. Minor repairs to concrete foundations shall be completed within seven (7) calendar days from the date of discovery and issuance of a ticket, or within twenty-one (21) days if the rebuilding or complete replacement of a concrete foundation is required.

10. Uniduct Exposure: Uniduct must be visible inside the pole. Below the foundation grade or flush is not acceptable. Where uniduct is below grade or flush, a split 12" uniduct extension shall be installed in place (excluding existing direct buried cable).

11. When ground conditions restrict the making of permanent repairs, the repairs shall be performed in accordance with a MAINTENANCE SCHEDULE.

12. The Contractor shall maintain in "like new" condition identification decals, of a size and type as specified by the Engineer. The Contractor shall supply and install decals found to be missing, worn, or damaged from any cause whatsoever. Light pole replacements due to Motorist Caused Highway Damage shall have decals replaced under routine maintenance.

13. Repair or replace damaged luminaires when the damage is confined to the luminaire or parts thereof and other parts of the light standard have not been damaged to the extent of requiring replacement.

14. Certain requirements apply when lighting units are replaced or repaired in place under routine maintenance. Unless otherwise authorized by the Engineer, luminaire ballasts shall match the system voltage and be of the same type characteristic as the original design and installation being replaced. In addition, except as otherwise indicated or authorized by the Engineer, the luminaries installed as replacements at an installation location, installed within six (6) years of the current year, shall be of the same manufacturer, and have the same photometric performance specification as the originally installed luminaire. When a replacement luminaire is installed, it shall be equipped with a new lamp. The Contractor shall submit proposed variant replacements to the Engineer for approval.

15. Any ineffective, missing or damaged luminaries or parts thereof shall be repaired or replaced with the same kind or better.

16. Repair or replace all cable or integral cable-in-duct combination damaged from any cause whatsoever, as follows:

    a. Where such damaged cable is in duct, steel or plastic conduit, the faulty wiring shall be removed and replaced with an approved new cable and the duct or conduit shall be repaired.

    b. Where damaged cable is buried in earth, the faulty section shall be removed and replaced plus a minimum of three (3) feet on each side of the undamaged adjacent cables. If the fault is six (6) feet or less from a pole, splicing handhole, or a control cabinet, the six (6) foot section shall be removed and replaced. The Engineer shall approve the cable to be used and the type of splices.

c. Permanent repairs shall follow as soon as possible and shall be completed within 21 calendar days. Only for notifications of cable failure after December 1, when frozen ground conditions restrict permanent repair work, will the temporary repairs be acceptable for a longer period of time. When temporary cable is installed, all splices shall be as good as splices for permanent repairs.

d. If an aerial cable is used for temporary response, it shall be installed so that its lowest point is at least twenty-five (25) feet above ground level.

17. Inspection of roadway lighting outages must be done at night and system shall not be energized during daytime hours. The Engineer may authorize the turn on of lights in special cases.

18. The Contractor shall conduct Control Cabinet Clock Inspection at every lighting system location, including facility lighting locations, twice per year. All lighting system locations must be inspected in May. The second control cabinet clock inspections must be performed in November. Repairs must be completed in the same month as the inspection. At this inspection the Contractor shall clean the cabinet, install decals or replace as necessary, and check the following:

- Time clock, including escapement (reserve power) and back up battery
- Background timer
- Springs (reset as required)
- Lighting contactors and surge suppressor
- Tighten all the contacts with proper torque
- Clean inside with vacuum cleaner

Tickets shall be created for any problems found.

19. All damaged or defective equipment in a lighting cabinet shall be replaced with new (not rebuilt) equipment unless authorized by the Engineer.

20. The contractor shall carry a digital camera to record the control cabinet pictures, one to show inside of the cabinet and other to view outside of cabinet, for each location. All the pictures shall be transferred into a file on disc to submit to the County after May inspection.

21. The Contractor shall replace the back-up battery for clocks (chargeable or regular) at all lighting locations once per year in May. This service may be performed at the same time as the clock inspection above. The Contractor is also required to put a sticker on the clock indicating the date for new battery.

22. The Contractor shall conduct a safety inspection of all lighting locations once per year. The purpose of this inspection is to insure that all lighting unit components are maintained in a safe and effective operating condition as originally designed or as subsequently modified by the Department. All lighting system locations must be inspected in February. Repairs must be completed in the same month as the inspection. Ticket numbers shall be submitted to the Engineer in the monthly routine work documentation.

Required repair work includes replacement of damaged mast arms, luminaires, shields, leaning poles, underpass fixtures, junction boxes, conduit, conduit hangers, or missing appurtenances such as decals, decal mounting brackets, shrouds, skirts, leaves, and handhole doors. All equipment and materials required for repairs and replacements shall be furnished as part of Routine Maintenance.

The Contractor shall use the same mast arm of the type, color, length, direction and rise, replaced after a knockdown by a motorist, or fall down due to high wind or age. The davit arm shall be horizontal to the X-axis and 90 degrees to the shaft plus/minus a tolerance allowed by the manufacturer.

23. The Contractor shall identify:
    - Existing light pole bases which are too high and do not conform to the current approved height limitations for base extensions above the adjacent grade.
    - Loose and/or worn nuts and washers by lifting the shroud or removing the skirt.
    - Any other abnormality (cracks, loose nuts and joints) due to the wind load condition.
    - Leaning (more than 10 degrees) poles
    - Pole that is susceptible to hit by motorist.
    - Mast arms fastened with riv-nuts.
    - Lighting locations with temporary aerial cable.
    - Underpass fixtures damaged and/or missing components
    - Underpass Lighting Conduit, JB, light fixtures and Decals deteriorated or torn

    The Contractor may be entitled to material repair re-imbursement per Contractor Advisory Inspections.

24. The Contractor shall list inspections and repair work on the Daily Agenda. No allowances will be made for delays due to poor weather or personnel shortages. If work is not completed on time routine maintenance withholding of up to $5,000 per location and/or Liquidated damages shall be assessed until all work is completed.
25. The Contractor shall conduct any safety inspection of light poles or underpass fixtures when recommended by the manufacturer, upon request by the Engineer, which is in addition to the regular inspection as specified herein.
26. An inventory, noting quantity, sizes, types and manufacturer of the lighting units and control cabinet components shall be submitted to the Engineer. In addition the Contractor shall submit verification that all lighting units are operating and that each unit is properly labeled and wired to the circuit as labeled in accordance with the record drawings.
27. A Ticket shall be created for all displaced defective, damaged or missing items as found. Completed monthly submittals shall be made to the Engineer by the last working day of the month.

Item BU REPLACE LIGHTING EQUIPMENT

Under this item, as listed in the Schedule of Prices, lighting equipment damaged by traffic shall be repaired by the Contractor. The labor under this item shall be paid for either as listed in the Schedule of Prices or as Regular workunder Article III Item 10 of this Contract when authorized by the Engineer.

Bid prices shall reflect the inclusion of the finishing, delivering, installing, removal, disposal of damaged parts, the removal of debris, the furnishing of miscellaneous material and/or the labor necessary to make a complete installation.

Bid prices shall reflect the inclusion of any labor or material not specifically provided for in the bid prices but necessary to make a complete replacement installation.

Damage by traffic to items not specifically provided for in the bid prices shall be repaired or replaced as part of routine maintenance.

Since repair or replacement of luminaires is part of routine maintenance as provided in Item B above, the bid price in the Schedule of Prices for Items of BU 4 alone are only for the purpose of clarifying the bid prices of Items BU-5.

Where existing poles are damaged or defective, they shall be replaced with aluminum poles or equal frangible poles as approved by the Engineer in accordance with Specifications relating to Light Pole Knockdowns as described below. If adapter plates or other appurtenances are necessary, these items shall be at the expense of the Contractor.

At high knockdown incident areas as determined by the Engineer, light pole knockdowns shall be relocated as directed by the Engineer. The Contractor shall furnish and install replacement parts for all of the damaged items. The Contractor shall also furnish and install the following items which may not have been part of the original installation: fuse holder, foundation reinforcing, foundation, adapter plates, #10 wires, and hardware necessary to replace or relocate the pole knockdowns. The materials and workmanship shall be as specified herein.

A. LIGHTING UNIT:

The pole mounting height, mast arm length, lamp, luminaire type and wattage shall be equal to the original specifications, unless otherwise directed by the Engineer.

The lighting unit mounted on an existing bridge structure shall be as herein described except the handhole shall be on the street side of the pole. The mounting height shall be as indicated by the Engineer. Any mounting brackets, plates, or bolts shall be included.

The lighting units shall be furnished with aluminum poles and mast arms as described under ALUMINUM POLE AND MAST ARM. The Foundation shall be as described under POLE FOUNDATION.

The luminaires and lamps shall be identical to existing installations, i.e. mercury vapor, metal halide, high pressure sodium vapor, etc. For the 400 watt luminaires, the light distribution shall be type III, medium, and semi-cutoff. The fuse shall be 6 ampere or rated for the existing load. For other

wattage luminaires, the Contractor shall submit photometric data for the luminaire selected, using a clear lamp, showing each type II, III, and IV pattern available and the Engineer will select the most advantageous light distribution. The fuse shall be of amperage designated by the Engineer. The luminaires and lamps shall be as described under LUMINAIRES.

All materials, work and tests necessary to replace or relocate a pole knockdown, including luminaries, cable-in-duct, grounding, splices, trench and backfill, and restoration of damages to the original condition, shall be as described in Specifications below and as approved by the Engineer.

The wire from the pole handhole to the luminaire shall be no. 10 AWG as described under Electric Cable 600 Volt. The fuse shall be 13/32 inch diameter, 1 1/2 inch long, 600 volt, current limiting, high interrupting capacity, ceramic tube fuse.

Construction Methods: The foundations shall be allowed to cure for 14 days before the light standards are erected. The depth of the foundation shall be adequate for the soil conditions. The light standards shall be set plumb on the foundations without the use of shims, grout, or other leveling devices. The mast arm shall be set at right angles to the centerline of the pavement. The leveling area of the luminaire shall be set in a plane parallel to the roadway taking into consideration the up grade or down grade and the super elevation of the roadway. Each luminaire shall be individually leveled after erection, and this leveling shall be witnessed by the Engineer. The no. 10 wire shall be continuous from the luminaire to the pole handhole.

B. ALUMINUM POLE AND MAST ARM:

The aluminum pole with mast arm consists of a pole, mast arm, pole base, bolt covers, pole cap, handhole with cover, and such nuts, bolts, washers, and incidentals necessary to complete the assembly.

Sections 830 and 838 of the Standard Specifications for Road and Bridge Construction, current version, shall be applied.

Materials shall be in accordance with Section 1069 of the Standard Specifications with the following exception:

Revise the third sentence of the first paragraph of Article 1069.02 of the Standard Specifications to read: Aluminum tubing shall be according to ASTM B 210M (B 210), Alloys 3003 or 6061.

All breakaway devices shall be Transformer Base.

The light pole style, mounting height and its diameter shall be as specified on the plan submitted by the Engineer and they are incidental.

C. LUMINAIRES:

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

The reflector, the refractor or lens, and the entire optical assembly shall not develop any discoloration over the normal life span of the luminaire. An extended warranty over and above the normal warranty shall be furnished by the manufacturer pertaining to the above said discoloration. The extended warranty shall be furnished in writing guaranteeing replacement, including cost of labor and shipment, free of charge to this Contract and to the County, of any optical assembly, or any component parts thereof, which, as determined by the Engineer, would develop the aforesaid discoloration. The extended warranty shall accompany submittal information.

Add the following to Article 1067.01(e) (1) of the Standard Specifications:

The ballast shall be a high power factor, low loss, auto regulator type ballast.

Delete Article 1067.01(e) (1) High Pressure Sodium Reactor ballast of the Standard Specifications.

Revise Article 1067.01(e) (1) of the Standard Specifications to read:

High Pressure Sodium Regulator: That ballast shall be a high power factor, constant wattage auto-regulator, lead type (CWA). The ballast shall be designed to furnish proper electrical characteristics for starting and operating a high pressure sodium vapor lamp of the specified rating at ambient temperatures of -29 degrees to +40 degrees C. The ballast windings shall be adequately impregnated and treated for protection against the entrance of moisture, insulated with Class H insulation, and able to withstand the NEMA standard dielectric test. The ballast shall include an electronic starting assembly.

The starting assembly shall be comprised of solid state devices capable of withstanding ambient temperatures of 85 degrees C. The starter shall provide timed pulsing with sufficient follow-through current to completely ionize and start all lamps. Minimum amplitude of the pulse shall be 2,500 volts, with a width of one (1) microsecond at 2,250 volts, and shall be applied within 20 electrical degrees of the peak of the open circuit voltage wave with a repetition rate as required by the lamp in accordance with ANSI for the 60 cycle wave. The lamp peak pulse current shall be a minimum of 0.2 amperes. Proper ignition shall be provided over a range of input voltage from 216 to 264 volts. The starter component shall be field replaceable and completely interchangeable with no adjustment necessary for proper operation. The starter component shall have push-on type electrical terminations to provide good electrical and mechanical integrity and ease of replacement. Terminal configuration shall preclude improper insertion of plug-in components. The starter circuit board shall be treated in an approved manner to provide a water and contaminant resistant coating.

The ballast shall have an overall power factor of at least 0.9 when operated under rated lamp load. The ballast shall withstand a 2,500 volt dielectric test between the core and windings without damage to the insulation. The ballast shall not subject the lamp to a crest factor exceeding 1.8 and shall operate the lamp without affecting adversely the lamp life and performance. The ballast shall be designed to ANSI Standards and shall be designed and rated for operation on a nominal 240 volt System. The ballast shall provide positive lamp ignition at the input voltage of 216 volts. It shall operate the lamp over a range of input voltages from 216 to 264 volts without damage to the ballast. It shall provide lamp operation within ANSI lamp specifications for rated lamp life at input design voltage range. All measurements shall be taken using a seasoned reference lamp conforming to

ANSI test procedures. The reference lamp wattage shall not vary more that +/-2% from the nominal wattage rating of the reference lamp.

Operating characteristics shall produce output regulation not exceeding the following values:

Nominal Ballast Wattage	Maximum Ballast Regulation
750	25%
400	25%
310	26%
250	22%
150	22%

For this measure, regulation shall be defined as the following:

$$\textit{Percentage Ballast Regulation} = \frac{WlampH - WlampL}{WlampN} \times 100$$

where: *WlampH* = lamp watts at +10% line voltage (264v)

WlampL = lamp watts at - 10% line voltage (216v)

WlampN = lamp watts at line voltage (240v)

Ballast losses, based on cold bench tests, shall not exceed the following values:

Nominal Ballast Wattage	Maximum Ballast Losses
750	16.0%
400	16.0%
310	19.0%
250	17.5%
150	26.0%

Ballast losses shall be calculated based on input watts and lamp watts at nominal system voltage as indicated in the following equation:

$$\textit{Percentage Ballast Losses} = \frac{Wline - Wlamp}{Wlamp} \times 100$$

where: *Wline* = line watts at 240v

Wlamp = lamp watts at 240v

The testing performed shall include photometric and electrical testing. Photometric testing shall be in

accordance with IES recommendations in addition that the selected luminaire(s) shall be tested as manufactured without any disassembly or modification and, as a minimum shall yield an isofootcandle chart, with maximum candela point and half candela trace indicated, an isocandela diagram, maximum plane and cone plots of candela, a candlepower table (house and street side), a coefficient of utilization chart, a luminous flux distribution table, and complete calculations based on specified requirements and test results.

Add the following to Article 1067.02 (a) (1) of the Standard Specifications:

The luminaire shall slip-fit on a two inch pipe arm, and shall have a barrier to limit the amount of insertion. The mounting clamp shall be concealed in the housing and provide a +5 degree vertical leveling adjustment. The slip-fit pipe entry shall be made by means of a flange internal to the cylinder and a round guide tube or other approved means which will provide a seal of the housing and minimum disruption of a smooth outside surface of the luminaire which will be compatible with the mounting arm.

See next page for Luminaire Performance Table.

Add the following table(s) to Article 1067 of the Standard Specifications:

IDOT DISTRICT 1 LUMINAIRE PERFORMANCE TABLE

GIVEN CONDITIONS		
ROADWAY DATA	Pavement Width	(ft)
	Number of Lanes	
	I.E.S. Surface Classification	R3
	Q-Zero Value	.07
LIGHT POLE DATA	Mounting Height	(ft)
	Mast Arm Length	(ft)
	Pole Set-Back From Edge of Pavement	(ft)
LUMINAIRE DATA	Lamp Type	HPS
	Lamp Lumens	
	I.E.S. Vertical Distribution	Medium
	I.E.S. Control Of Distribution	Cutoff
	I.E.S. Lateral Distribution	Type I
	Total Light Loss Factor	
LAYOUT DATA	Spacing	(ft)
	Configuration	Single Sided
	Luminaire Overhang over edge of pavement	(ft)

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		
ILLUMINATION	Ave. Horizontal Illumination, E_{AVE}	Lux
	Uniformity Ratio, E_{AVE}/E_{MIN}	(Max)
LUMINANCE	Average Luminance, L_{AVE}	Cd/m^2
	Uniformity Ratio, L_{AVE}/L_{MIN}	(Max)
	Uniformity Ratio, L_{MAX}/L_{MIN}	(Max)
	Veiling Luminance Ratio, L_V/L_{AVE}	(Max)

NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

LIGHT DISTRIBUTION: The light distribution shall comply with the type of distribution specified. The distribution type shall be as specified in the "American National Standard Practice for Roadway Lighting" latest edition by the "Illuminating Engineering Society of North America" and also meet the requirement of "General Guidelines For Lighting Design, Plan Preparation, and Highway Lighting by Permit" latest edition by the " Illinois Department of Transportation". The Contractor shall submit to the County for the Engineer's approval.

TESTS: The Cook County Department of Transportation and Highways reserves the right to make such tests as it deems necessary to insure compliance with these specifications and to reject those luminaires failing such tests, or those luminaires with improper or inadequate light distribution. The Engineer shall be the sole judge as to the quality of light distribution, materials, and workmanship.

C.1 LUMINAIRE, HIGH PRESSURE SODIUM (HPS) FOR STANDARD LIGHT POLE:

Materials shall be in accordance with Section 1067 of the Standard Specifications and the above Special Provisions. The wattage and operating voltage as specified on the plan submitted or as existing shall be used.

Each Luminaire shall be mounted as indicated and as required for the permanent lighting installation. Each luminaire shall be set in a plane parallel to the roadway, taking into consideration the applicable grade and superelevation of the roadway.

C.2 The installation shall be complete with pole wire, fusing and connection to the applicable lighting feeder circuits, all incidental to this item. A set screw shall be used to lock the fixture on the mast arm so as to prevent twisting or turning of the luminaire due to wind or vibration.LUMINAIRE, HIGH PRESSURE SODIUM (HPS) and LOW PRESSURE SODIUM (LPS), FOR UNDERPASS:

The underpass luminaire shall be in accordance with Article 1067.04 of the Standard Specifications and the above Special Provisions.

The underpass luminaire shall be suitable for lighting an underpass at mounting height as specified from a position suspended directly above a roadway or attached to a wall or pier.

The luminaire shall provide the lighting distribution described herein, be optically sealed, mechanically strong and easy to maintain. The reflector, wiring terminals, and ballast components shall be readily accessible. When closed for operation, the optical assembly and the ballast assembly shall be sealed against the entry of moisture, dirt and insects. It shall not be necessary to remove more than the cover, reflector and lens to mount the luminaire.

The unit shall be heavy duty, suitable for highway use. It shall have no indentations or crevices in which dirt or salt or other corrosives may collect. All removable components and hardware, except for the ballast tray, shall be held captive.

C.3 Unless otherwise indicated, attachment of underpass lighting appurtenances, including the placement of associated anchors, but not limited to underpass luminaires, identification brackets and conduit shall not be attached and/or drilled into precast, prestressed concrete beams. However, existing anchors, which have been installed improperly, shall be left in place. Removal of such

would cause more damage to the beam than leaving the anchors in place. LUMINAIRE, HIGH PRESSURE SODIUM (HPS), BUILDING WALL MOUNTED:

The housing shall be of aluminum construction consisting of a single piece extruded main frame and flat sheet back panel. Heavy-duty cast aluminum doorframe shall be hinged and latched by means of a single screw. The optical system shall be adjustable, sharp cutoff, reflector optical assembly consists of a hydroformed, specular Alezak main reflector with both parabolic and cylindrical reflecting surfaces, auxiliary reflecting elements, and support frame. Optical elements may be rotated to permit adjustment of cutoff over a range from 70 degrees through 86 degrees. The refractor shall be vandal resistant, injection molded, polycarbonate lens, UV stabilized, and complete with special UV inhibiting coating. The luminaire shall be UL listed for wet locations. The mounting accessories, hardware and brackets, shall be made out of stainless steel, unless indicated otherwise.

The cover-reflector and socket-reflector junctions shall be sealed against the entry of moisture, dirt and insects with a thick, high density Dacron felt gasket, securely attached by mechanical means, such as a retaining lip, or by a wide-temperature permanent adhesive in a manner acceptable to the Engineer. It shall be an equivalent or better than the Paracyl luminaire.

A decal, complying with the ANSI standard shall be factory attached permanently to the luminaire.

The information contained in the decal shall enable a viewer, from the ground level to identify the lamp wattage and type of luminaire distribution.

The wattage and operating voltage as specified on the plan submitted or as existing shall be used.

Wall mount luminaires shall be either attached to structures, such as a wall, as indicated or implied by the configuration on the plans, or as directed by the Engineer. All mounting hardware shall be corrosion resistant and shall be stainless steel unless otherwise indicated.

C.4 LUMINAIRE, HIGH PRESSURE SODIUM (HPS), MULTI-TAP FLOODLIGHT, OR ROOF MOUNTED LIGHT:

The housing shall be heavy duty out of die cast aluminum. The luminaire shall meet NEMA specifications, high pressure sodium lamp, of specified wattage and voltage specified shall be included with the luminaire. The shield (if specified), other mounting accessories as specified on the contract drawing shall be included with the luminaire.

When closed for operation, the optical assembly shall be sealed with a gasket against the entry of moisture, dirt and insects. The cover-reflector and socket-reflector junctions shall be sealed against the entry of moisture, dirt and insects with a thick, high density Dacron felt gasket, securely attached by mechanical means, such as a retaining lip, or by a wide-temperature permanent adhesive in a manner acceptable to the Engineer. Submittal information shall include data relative to gasket thickness and density and the means of securing it in place. An alternative gasket material may be approved by the Engineer. There shall be a provision for thermal breathing. A charcoal filter may be used, subject to approval by the Engineer.

A decal complying with the ANSI standard shall be factory attached permanently to the luminaire.

The information contained in the decal shall enable a viewer, from the ground level, to identify the lamp wattage and type of luminaire distribution.

Roof mount luminaires shall be mounted on the roof as indicated by the configuration on the plans, or as directed by the Engineer. All mounting hardware shall be corrosion resistant and shall be stainless steel unless otherwise indicated.

C.5 LUMINAIRE, FLUORESCENT, BUILDING CEILING MOUNTED:

The housing shall be one piece and refractor made out of durable polycarbonate to reduce vandalism. The luminaire shall be designed and constructed in accordance with the requirements of UL. The mounting accessories, hardware and brackets shall be made out of steel for environmental conditions.

The cover-reflector and socket-reflector junctions shall be sealed against the entry of moisture dirt and insects with a thick, high density Dacron felt gasket, securely attached by mechanical means, such as a retaining lip, or by a wide-temperature permanent adhesive in a manner acceptable to the Engineer.

A decal complying with the ANSI standard shall be factory attached permanently to the luminaire. The information contained in the decal shall enable a viewer, from the ground level, to identify the lamp wattage and type of luminaire distribution.

D. POLE FOUNDATION:

This work shall consist of the construction of a reinforced concrete foundation with dimensions required by the type of soil as shown on the drawings.

DESCRIPTION: This item shall consist of the construction of a steel reinforced concrete light pole foundation complete with raceways, as specified herein. The foundation depth shall be as indicated in the Foundation Depth Table on the plans (where applicable) or as directed by the Engineer.

The foundation shall include excavation, reinforcement, concrete, anchor bolts, nuts, washers and raceways as well as clean-up and restoration of the location when such work is not provided under other paid items.

The engineer shall identify the soil and determine the depth for the foundation.

Sections 836, 1070 and 1020, and also Articles 1006.10, 1088.01, of the Standard Specifications for Road and Bridge Construction, Current version, shall apply to this pay item with the following:

Anchor bolts for light poles are heat treated. Therefore, an exothermic ground wire connection shall not be made to the anchor bolt. A mechanical connection of the ground wire should be made to the anchor bolt. However, the cable connection to the ground rod and the rebar cage should be exothermic.

Add the following to Article 836.03 (b) of the Standard Specifications:

An alternate steel screw type foundation may be used at the discretion of the Engineer.

E. GROUND FIELD:

This item shall consist of furnishing materials and labor for the installation of a ground field, which shall consist of 3 (three)ground rod access wells in a 10 ft. triangle connected via bare copper wire as specified herein, at locations indicated by the Engineer.

Articles 806, 825.04, and 1087.01 of the Standard Specifications shall apply to this pay item.

Each of the 3 (three) ground rod access wells shall consist of a 5/8 in. X 10' copper clad ground rod in a 12 in. minimum diameter PVC enclosure with cast metal removable flush covers.

The 3 (three) ground rod access wells shall be installed in a typical 10 foot triangle connected via 2/0 bare copper wire by exothermic welds. No ground well shall be placed in the concrete pad in front of the lighting controller.

The removable flush cover shall be attached to the PVC enclosure via stainless steel hexhead screws.

The ground rods shall be buried 12 in. below grade and the access well shall be filled with crushed stone to point 36 in. below grade.

The 2/0 bare copper wire leaving the ground rod access well closest to the lighting controller cabinet, shall be exothermically welded and enter the lighting controller cabinet foundation via a 1 in. diameter rigid steel conduit.

Item BW-1 PAINT HIGH MAST LIGHT POLE INCLUDING BLAST CLEANING

Under this item, at the contract unit price **EACH** as shown in the Schedule of Prices and when directed by the Engineer, the Contractor shall paint an existing high mast light pole which requires blast cleaning before painting. All operations are to be conducted in such a manner as to prevent any spills and materials to fall on pedestrians and vehicles. Painting of the high mast pole shall include all parts of the pole previously painted such as the pole, luminaire ring, mast arm(s), hardware, and base plate.

The surface shall be prepared using a SSPC (Steel Structures Painting Council)-SP-6 Commercial Blast Cleaning and/or Power Tool Cleaned to SSPC SP-3, depending on condition, to remove the paint and loose primer. The surface shall then be sand blasted followed immediately by a primer coat of Keeler & Long, Inc. No. 6500 Galvanode Primer or equivalents approved in writing by the Engineer 4.0 to 6.0 mils thick. The finish coat shall not be applied prior to a minimum time of 48 hours of drying time for the prime coat. Painting shall not be done during rain or inclement weather with the temperature between 50 and 100 degrees F and the relative humidity of 85% or less or the temperature at least 5 degrees F above the dew point.

The finish paint shall be silicone-alkyd resin type paint Keeler and Long P-series polysilicone enamel, or approved equal. The finish paint shall be applied in one coat to a 2 to 3 mil dry film thickness following the manufacturer's method of application. The finish paint shall be applied to outside surfaces only. Paint finish shall match existing paint .

Item BW-2 DESIGN AND IMPLEMENT A DECAL BASED NUMBERING SYSTEM FOR ALL HIGHWAY LIGHTING SYSTEMS

This item shall consist of designing, furnishing and installing, a lighting unit identification decal based numbering system for all pole, underpass, building mounted, and light tower poles and luminaires for all CCDOTH Systems being maintained under this contract. This work shall also include the removal of all existing decals as necessary to complete the installation in a neat and aesthetically pleasing manner.

Materials: Article 1069.06 of the Standard Specifications shall apply to this pay item. The adhesive to be used shall be recommended by the manufacturer of the decals and shall not be injurious to the surfaces.

Installation: Prior to furnishing and installing the numbering system the Contractor shall submit the preliminary design to the Engineer for approval.

Underpass identification brackets shall not be attached and/or drilled into precast, prestressed concrete beams. Brackets shall be furnished where needed to identify lights in the maintenance yards and at any other location deemed necessary by the Engineer.

Prior to installation the surface where the decals are to be placed shall be cleaned to the satisfaction of the Engineer. The corners of the location to which the decals are to be affixed shall be marked using yellow vinyl electrical tape. Adhesive shall be applied to the back of the sheeting which shall then be mounted on the surface. Any excess adhesive shall be cleaned away using solvent or cleaner approved for that purpose and the electrical tape shall be removed.

This item shall be paid at the contract unit price **EACH** for designing, furnishing and installing a decal based lighting numbering system complete.

Item BX-1 GROUP REPLACEMENT OF MERCURY VAPOR LAMPS

Item BX-2 GROUP REPLACEMENT OF HIGH PRESSURE SODIUM LAMPS

Item BX-3 GROUP REPLACEMENT OF LOW PRESSURE SODIUM LAMPS

Item BX-4 GROUP REPLACEMENT OF METAL HALIDE LAMPS

Under these items, at the contract unit price **EACH** as shown in the Schedule of Prices, and when directed by the Engineer in writing, the Contractor shall group replace lamps in the Street and Highway Lighting System at an interval approximating the rated life of the lamp. The actual dates of the group replacement shall be in accordance with Maintenance Schedules. All lamps used for group replacement shall be subject to approval by the Engineer. At the time of group replacements, the Contractor shall clean the reflectors and glassware, and re-align and level luminaires according to specifications approved by the Engineer for the particular luminaires involved. All glassware shall be washed, rinsed and wiped dry inside and out. Clean any dirt and debris from on or around underpass, wall, and/or roof mounted fixtures or navigation lighting fixtures. Each fixture opened for washing shall be securely re-locked. If any decals are torn or missing, including the mounting bracket, they shall be replaced. They shall be part of this item.

All used lamps must be taken to a certified processing facility meeting Environmental Protection Agency (EPA) Standards. A receipt shall be furnished to the County showing that the lamps have been disposed of properly. The lamps shall be taken to Fluorecycle, Inc. (815-363-4411) or to another EPA and the County approved lamp recycling center.

Item BY-1 REPLACE FAULTY CABLE FOR STREET AND ROADWAY LIGHTING SYSTEM

Under this item, for a unit price **FOOT** as shown in the Schedule of Prices, and when directed by the Engineer in writing, the Contractor shall replace spans of Street and Roadway Lighting System cable with cable-in-duct, or approved equal. This item of work shall not be confused or construed to be in conflict with any part of Routine Maintenance, which requires the replacement of spans of damaged cable by the Contractor at his expense. The Engineer shall determine the need to replace cable, based upon a history of cable failure, data from tests made on the cable, visual inspection, and other pertinent data supporting the need for cable replacement. Nothing under this item shall be construed as obligating the Department to authorize any cable replacement.CABLE-IN-DUCT:

This work shall consist of removing, furnishing, splicing, installing, and testing the entire length of electric cable and duct, of the type and size specified and furnishing and installing insulated bushings on the ends of existing conduits.

The assembly of conductors, cables, and ducts shall be made at the factory in continuous lengths that will permit installation of the longest spans without splicing either cable or duct. Splices of cable or duct will be permitted only in handholes, light standard bases, or junction boxes, and none will be permitted in the

trench. Each length of cable and duct shall consist of four individually insulated conductors, surface color coated, one red, one black, one green and one white, laid parallel in a flexible plastic duct. All four conductors shall be of the same AWG size. The cable-in-duct assembly shall be factory coiled and delivered on reels with underwriters tags and labels which shall be removed from the reels by the Engineer for the Departments records.

A.1 MATERIAL: The flexible electrical plastic duct shall be manufactured to comply with the American Society for Testing and Materials Standards (latest edition) cited by the ASTM Designation Number.

The duct shall be manufactured from black polyethylene complying with ASTM D1248, Type III, Grade 3, Class C with the following exceptions and additions:

i. The Elongation when tested by the procedure in ASTM D638 shall be a minimum of 300%.

ii. The Brittle Temperature when tested by Procedure A in ASTM D746 shall be -70 degrees C or below.

iii. The Environmental Stress Crack Resistance when tested in accordance with ASTM D1693 shall produce not more than 2 failures per 10 specimens after 48 hours.

A.2 CONSTRUCTION: The duct shall be manufactured as polyethylene plastic pipe complying with ASTM D2104 with the following exceptions and additions:

i. The outside diameter, minimum wall thickness, and bending radius shall be as follows:

Nominal Size	Outside Diameter	Minimum Wall Thickness	Minimum Bending Radius
Inches	Inches	Inches	Inches
3/4	1.050	0.080	13
1	1.315	0.100	13
1-1/4	1.660	0.106	18
1-1/2	1.900	0.122	21
2	2.375	0.158	26

The duct may be manufactured to the dimensions in this table, for Schedule 40. The duct must be capable of being bent in the minimum bending radius listed above.

ii. The duct shall pass the following tests:

Freeze-up Test: A ten foot length of the duct bent into an upright "U" shape shall be filled with water and then placed in a low temperature cabinet and maintained at -20 degrees C for 24 hours. The duct shall not crack or burst during the test.

Compression Test: The test shall be conducted on a six inch sample of the duct, using equipment set at two inches per minute. Samples are placed between six inch plates and compressed at the rate of one-half inch per minute until the distance between the plates is

reduced by 50%, recording the load required to compress the duct. The samples are then removed and allowed to stand for exactly 5 minutes. The load required to compress the sample shall be equal to or greater than that listed below and the duct shall have returned to not less than 85% of its original diameter at the end of the 5 minutes.

Nominal Size Inches	Load Lbs
3/4	122
1	167
1-1/4	243
1-1/2	297
2	387

A.3 Tests: All of the tests referred to above and the applicable tests in the cited ASTM Standards shall be performed on the duct at the manufacturer's plant and certified copies of the reports of the results of these tests shall be submitted to the Engineer prior to the installation of the duct.

A.4 Construction Methods: The electric cable shall be continuous without splices between cabinets, service connections and light standards. The duct shall be continuous between light standards, and the first light standard and the control cabinet, and through all conduits. The duct shall extend one foot into the light standard and the cable shall be long enough for the splices to be withdrawn one (1) foot six (6) inches out of the light standard handhole. All electric cable and unit duct shall be placed in trench or conduit at a minimum depth of two (2) feet six (6) inches below finished grade.

A.5 Basis of Measurement: Electric cable unit duct shall be measured in lineal foot in place and taken as the length of the white wire. Measurement shall be made in a straight line between changes in direction and to the centers of light standards and control cabinets. All vertical cable and permissible slack shall be measured for payment.

B. ELECTRICAL CABLE 600V, PLASTIC INSULATED, MATERIALS:

The electric cable shall comply with the American Society for Testing and Materials Standards (latest edition) cited by the ASTM Designation Number and to the Insulated Power Cable Engineers Association Standards cited by the paragraph or table number in I.P.C.E.A. Publication NO. S-61-402 (latest edition).

B.1 CONDUCTORS: Conductors of No. 8 AWG size and smaller shall be solid annealed copper wire complying with ASTM Designation B-3.

Conductors of No. 7 AWG size and larger shall be stranded annealed copper wire complying with ASTM Designation B-8, Class B. More flexible wire may be substituted for that specified.

B.2 INSULATION: The conductors will be insulated with plastic insulation which shall be Polyvinyl Chloride 75C complying with Paragraph 3.8 of I.P.C.E.A. Publication No. S-61-402. The thickness of the insulation shall comply with Paragraph 3.2 of the above Publication and shall be as stated in Table II.

B.3 ALTERNATE INSULATION: The conductors will be insulated with plastic insulation which shall be Cross-Linked Thermosetting Polyethylene complying with Interim Standard #2 to I.P.C.E.A. Publication No. S-66-524. The thickness of the insulation shall be as stated in Table I.

B.4 TESTS: All applicable tests in Part 6 of I.P.C.E.A. Publication No. S-61-402 shall be performed on the cable at the manufacturer's plant and certified copies of the reports of the results of these tests shall be submitted to the Engineer prior to the installation of the cable.

B.5 SPLICING OF 600 VOLT CABLE AND WIRE shall meet the requirements of article 1066 of the Standard Specifications.

B.6 ALL AREAS AND PLANT MATERIAL DAMAGED shall be replaced as follows:

i. Grass Areas: Replace top soil to a depth of four (4) inches (100 mm), regrade shoulders, ditch slopes, and open areas back to former existing grades, fertilize, seed and mulch all damaged areas.

ii. Sodded Areas (areas adjacent to residential, commercial and industrial properties and any other areas as directed by the Engineer): Fertilize and re-sod damaged areas.

iii. Plant Materials: Remove and replace damaged trees, shrubs and vines with the same varieties that existed prior to the damage.

iv. Shoulders other than stabilized and backslope: Replace shoulder to original condition and restore edge of backslope to original lines and grades. Medians, sidewalks and pavement shall be replaced in kind.

All damaged landscape shall be replaced in accordance with Section 250 through 254 of the Standard Specifications.

Any damage, due to the installation of equipment; or necessary removal at handholes, jacking pits, and inspection openings, of sidewalks, curbs, gutters, median and island paving, and/or pavement, shall be repaired or replaced by the Contractor. Repair or replacement shall be made with a like material of like thickness to the existing surface.

This work will not be paid for directly but shall be considered as incidental to the contract.

B.7 CONTROL OF MATERIALS

The contractor shall comply with the requirements of Section 106 of the Standard Specifications and in addition shall comply with the following:

Within thirty (30) days after the Engineer's authorization and before any work is performed the Contractor shall submit for approval to the Engineer complete manufacturer's specifications and descriptive bulletins, drawings, etc. of wire, cable, splicing connectors, tapes and adhesives, conduit, duct, raceways and equipment to be installed.

Before any electrical equipment is delivered to the job site the Contractor shall obtain and forward to the Engineer:

i. A written, certified, notarized statement from the manufacturer, stating the catalog numbers of equipment and guaranteeing that the equipment complies in all respect with the requirements of these Special Provisions.

ii. The Contractor shall prepare the equipment in his shop so that it can be readily inspected and shall request an inspection of the equipment. The inspector will tag that equipment which is inspected, and it may then be delivered to the job site. No uninspected material is to be delivered to the job site or installed in the work. No material will be inspected unless the certified notarized statement required above is delivered to the Engineer.

iii. The Contractor shall supply samples of all wire and cable, and shall make up and supply samples of each type of cable splice used in the work.

B.8 INSPECTION:

The Contractor shall comply with the provisions of Articles 105.12 and 105.13 of the Standard Specifications and in addition shall comply with the following:

i. All splices, taps and ground connections shall be inspected by the Engineer before the wires are permanently trained in handholes, junction boxes, conduits, or light standards.

ii. After the installation has been completed, current, voltage, and insulation resistance readings for each circuit shall be taken and tabulated by the Contractor. Any indication of grounds shall be thoroughly investigated and remedied before final acceptance of the installation. Insulation resistance shall meet with the approval of the Engineer. Lamp terminal voltages shall be taken at the locations designated by the Engineer. Three copies of the tabulation of voltages, current, and insulation resistance readings shall be submitted to the Engineer. A field test, witnessed by the Engineer shall be made to insure that all lighting and control equipment is in proper operating condition.

Item BZ-1 SPECIAL CLEANING OF LUMINAIRES, STANDARD UNIT OVER 30'

Item BZ-2 SPECIAL CLEANING OF LUMINAIRES, HIGH MAST UNIT, OVER 80' WITH LOWERING DEVICE

Item BZ-3 SPECIAL CLEANING OF LUMINAIRES, UNDERPASS UNIT UNDER 30'

Under these items, for a unit price as shown under the Schedule of Prices, and when directed by the Engineer in writing, the Contractor shall clean luminaires, reflectors, and glassware for units of the Street and Roadway Lighting System. All glassware shall be washed, rinsed and wiped dry inside and out. Clean any dirt and debris from on or around underpass, wall, and/or roof mounted fixtures or navigation lighting fixtures. Each fixture opened for washing shall be securely re-locked. If any decals are torn or missing, including the mounting bracket, they shall be replaced. They shall be part of this item.

This work is in addition to the annual cleaning specified under Routine Maintenance, and the cleaning specified under Group Replacement.

Item C-1 NAVIGATION LIGHTING SYSTEM ROUTINE MAINTENANCE

In addition to the requirements listed above under ROUTINE MAINTENANCE, the following shall be part of this item:

1. Report in writing to the Engineer, lamp and circuit outages and damaged, broken or defective components within two working days after each inspection.

2. Replace all burned out lamps and broken glassware not later than twenty four (24) hours following discovery or notification. Determine the cause of the malfunction unless it was caused by a burned out lamp, without energizing the light from the normal source. Replace all burned out lamps and broken glassware to match the same type characteristic as the original installation.

3. Clean all types of luminaires ONCE EVERY TWELVE (12) MONTHS in accordance with MAINTENANCE SCHEDULES. All glassware shall be washed, rinsed and wiped dry inside and out. Clean any dirt and debris from on or around navigation lighting fixtures. Each fixture opened for washing shall be securely re-locked.

4. Provide immediate corrective action to restore service involving an outage of one (1) or more lights on a circuit.

5. When ground conditions restrict the making of permanent repairs, the repairs shall be performed in accordance with a MAINTENANCE SCHEDULE.

6. Repair or replace all cable damaged from any cause whatsoever, as follows: Where such damaged cable is in duct, steel or plastic conduit, the faulty wiring shall be removed and replaced with an approved new cable and the duct or conduit shall be repaired. Where damaged cable is buried in earth, the faulty section shall be removed and replaced using approved cable and splicing methods. When temporary cable is installed, all splices shall be as good as splices for permanent repairs.

7. Maintain in stock at all times sufficient assorted new Navigation Lights, Lenses, Lamps, Breakers, Fuses, Switches, Timers, Relays, Splicing, Materials, Cable, Conduits and Fittings, and other parts in order that all malfunctions from any cause whatsoever, can be temporarily or permanently corrected, and all defective or damaged components, can be replaced.

8. Repair or replace any part or parts of the system damaged from any cause whatsoever, except as provided for under Item CX and CY.

Item C-2 BRIDGE CATHODIC PROTECTION SYSTEM ROUTINE MAINTENANCE

Under this item, the Contractor shall service and maintain the existing bridge cathodic protection systems and any new bridge cathodic protection systems-that may be installed or taken over for maintenance by the Department during the period of this Contract.

1. Patrol and inspect the bridge cathodic protection system for proper operation once every two (2) weeks.

2. Maintain cathodic maintenance log sheet as instructed by the Engineer and perform operations as stated. The log sheet shall not be revised or removed from the rectifier. Copies of all entries to the log sheets are to be faxed to the Department's downtown office by November 15. One log book shall contain current year data as well as information as recorded in previous years.

3. Twice a year, in April and October, with the Engineer present, perform the following tests (tests to be done as specified in the Operating Manual furnished by the Cathodic Protection System Manufacturer):

   - Operating voltage at each rectifier output.
   - Operating current at each rectifier output.
   - "On" and "Off" potentials of the rebars with respect to each embedded reference electrode.
   - Four (4) hour depolarization test.

4. Keep power supply, controller cabinet and all its components, and service cable and conduit in proper working condition. The Contractor shall notify the Engineer in writing immediately upon failure of any part(s) of the cathodic protection system. Estimated time of repair shall also be included in this report.

5. Any connection lead to the bridge structure will be replaced and/or spliced (with an approved heat shrink type splice with a meltable sealant) as part of this item with the exception of the thermite brazing connections which will be paid for under Item CZ.

6. Have the Cathodic Protection System settings analyzed by a Cathodic Protection Expert (Expert to be a representative of CorrPro Companies, Inc). Make any changes to settings as recommended by the Cathodic Protection Expert.

Item CX-1 REPLACE BROKEN LENSES

Under this item, as listed in the Schedule of Prices, navigation lenses damaged shall be replaced by the Contractor.

The Engineer shall determine the need to replace broken lenses. Nothing under this item shall be construed as obligating the Department to authorize any broken lenses replacement.

Bid prices shall reflect the inclusion of the removal, and disposal of damaged lenses, the removal of debris, the furnishing, delivering, installing of all miscellaneous materials and the labor necessary to make a complete installation.

Damage to items not specifically provided for in the bid prices shall be repaired or replaced as part of routine maintenance.

Item CY-1 REPLACE NAVIGATION LIGHTING UNIT

Under this item, as listed in the Schedule of Prices, navigation lighting units damaged shall be replaced by the Contractor.

The Engineer shall determine the need to replace navigation lighting unit, based upon a history of navigation lighting unit failure, visual inspection, and other pertinent data supporting the need for replacement. Nothing under this item shall be construed as obligating the Department to authorize any navigation lighting unit replacement.

1. NAVIGATION LIGHT FIXTURE:

   This item shall consist of furnishing and installing a navigation light fixture, conduit connection, and all appurtenances mounted on bridges. The existing navigation light fixture shall be properly disposed of off of County Right Of Way.

   The existing navigation light fixtures currently installed on the Department structures meet U.S. Coast Guard Bridge Lighting Regulations. Refer to Section 822 of the Standard Specifications for Road and Bridge Construction, current version. Replacement fixtures or equipment required under this contract shall:

   A. Meet current U.S.C.G. regulations.

   B. Be mounted in the same location and manner as the original units.

   C. Match the Fresnel lens color and degree spread (either 180 degrees or 360 degrees) as the existing units.

   D. Be equipped with a Lens Protector.

   E. Light fixture shall match the same type characteristic as the original installation.

2. LENS PROTECTOR:

The shields shall be formed from 3/16" clear Lexan and be ballistically proven to deflect most small caliber bullets from 25 to 75 feet.

The existing Lens Protectors currently installed on the Department fixtures meet U.S. Coast Guard Bridge Lighting Regulations. Replacement Lens Protectors of equipment required under this contract shall:

A. Meet current U.S.C.G. regulations.

B. Be mounted in the same location and manner as the original units.

C. Match the degree spread (either 180 degrees or 360 degrees) as the existing fixtures.

D. Lens protector shall match the same type characteristic as the original installation.

The Contractor shall provide all equipment, transportation and labor necessary to furnish and install the equipment as specified. New wiring and conduit will be paid under separate contract pay items.

Bid prices shall reflect the inclusion of the removal, and disposal of damaged parts, the removal of debris, the furnishing, delivering, installing of all miscellaneous materials and the labor necessary to make a complete installation.

Damage to items not specifically provided for in the bid prices shall be repaired or replaced as part of routine maintenance.

Item CZ-1 REBRAZE LEAD WIRE TO STEEL REINFORCEMENT BAR

Under this item, as listed in the Schedule of Prices, lead wires broken off from the rebar shall be repaired by the Contractor when directed by the Engineer in writing. The existing concrete is to be removed in the area of the rebar taking care not to damage the anode system installed in the deck. The thermite brazing kit shall be Cadweld cathodic protection connections. All thermite brazed connections shall be installed and tested in accordance with the manufacturer's specifications and instructions. All thermite brazing connections shall be coated with a nonconductive epoxy coating. Patch the rebar excavation with concrete equal to the existing or as directed by the Engineer.

Bid prices shall reflect the inclusion of the removal, and disposal of damaged parts, the removal of debris, the furnishing, delivering, installing of all miscellaneous materials and the labor necessary to make a complete installation.

Bid prices shall reflect the inclusion of any labor or material not specifically provided for in the bid prices but necessary to make a complete replacement installation.

Damage to items not specifically provided for in the bid prices shall be repaired or replaced as part of routine maintenance.

ITEM CZ-2 REPAIR ANODE MESH

Under this item, as listed in the Schedule of Prices, the anode mesh shall be repaired by the Contractor when directed by the Engineer in writing. The existing concrete is to be removed by others. If the removal of the delaminated concrete has exposed any steel, the Contractor shall test the steel to ensure good electrical conductivity. If the steel is found to be discontinuous, the Contractor shall make it continuous.

METHOD OF SPLICING:

1. With a concrete chisel, carefully expose two (2) diamonds of mesh at each of two (2) locations on opposing sides of the excavation. Measure and cut a length of current distributor to fit across the excavation, ensuring that the current distributor is sufficiently long to overlap the exposed two (2) diamonds on either side. Weld the current distributor to the exposed mesh at the junctions of the diamonds.

2. Cut a piece of ELGARD mesh to fit the size of the excavation. Place the new ELGARD mesh in the excavation. Weld the new mesh to the current distributor at each junction point or every three (3) inches. Fasten the mesh to the concrete using the Xmas tree fasteners provided by ELGARD Corporation.

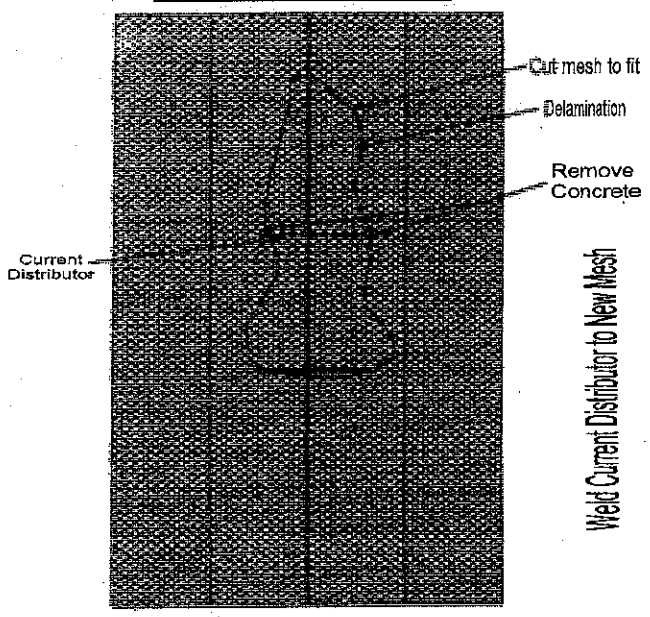
3. If the elimination extends across the width of the mesh, then additional current distributor must be used to splice the embedded mesh to the mesh used for repair. This step will ensure that the piece of mesh on the far side of the repair from the power feed is electrically continuous with the new mesh.

4. Check for short circuits between the anode (mesh) and steel using a portable DC voltmeter.

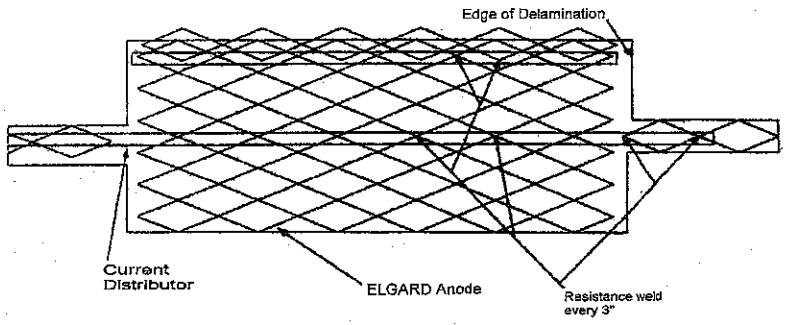
Bid prices shall reflect the inclusion of any labor or material not specifically provided for in the bid prices but necessary to make a complete replacement installation.

Damage to items not specifically provided for in the bid prices shall be repaired or replaced as part of routine maintenance.

PLAN VIEW OF DELAMINATION



WELDING DETAIL



Item D. PUMPING STATION ROUTINE MAINTENANCE

Under this item, the Contractor shall service and maintain the existing pumping stations and any new pumping stations that may be installed or taken over for maintenance by the Department during the period of this Contract.

The Pumping Station System shall consist of all types of pumps, motors, switchgear, control systems, alarm systems, control processors, transformers, purged air systems, recording systems, lubrication systems, trash racks, water systems, lighting systems, power wiring, heating/ventilating systems, flow metering systems, compressed air system, fencing, gates, windows, doors, locks, gas detection system and all auxiliary appurtenances owned by Cook County and under the jurisdiction of the Cook CountyF Department of Transportation and Highways.

Pump Stations shall remain in continuous operation during normal and emergency maintenance activities. It is imperative that the Contractor immediately address alarms, reports of water on pavement, reports of clogged inlet or catch basin, or other serious malfunctions or damage by dispatching trained personnel to check the pump station.

THE FOLLOWING SHALL BE PART OF THIS ITEM:

A. At the beginning of the Contract, the Contractor shall, under routine maintenance:

- Organize log books in each pump stations as described herein.
- Replace locks of all pump stations and furnish a set of keys to the County.
- Furnish and deliver replacement compressed air tanks at all pump stations.

B. Patrol and inspect the pumping station system and check each pumping unit for proper operation once every two (2) weeks. Alternately perform Item R and S monthly inspection.

C. The Contractor shall submit the names and addresses of a minimum six (6) potential vertical/submersible service repair companies within the tri-state area of Illinois/Indiana/Wisconsin, for Engineer approval, at the Pre-Construction meeting. The Contractor shall submit the name(s) of lab facilities that are certified and equipped to test oil and other lubricant fluids for Engineer approval, at the Pre-Construction Meeting.

When the Contractor is unable to complete repairs to pump station equipment the Contractor shall provide a County approved Service Company to supplement his forces in order to meet contract requirements. 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 work with the Service Companies and provide qualified Contractor personnel to:

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

D. Maintenance Response for Pump Stations:

Report to the engineer by the fastest means of communication:

- any work authorized being performed by others affecting the system,
- any other work in progress which may come to his attention and which may endanger or damage any installation of the system,
- Any emergency temporary repairs which may cause the Contractor to make temporary major changes in the system.

Respond to all emergency calls by the Engineer, and all calls by the Engineer to supervise additional installations by others, or to locate underground cables or any other components of the system to prevent damage by any proposed construction.

- Upon receipt of an AEGIS Pump Station alarm the Dispatch Center personnel shall create a Ticket.
- For all alarms except Entry Alarms the Dispatch Center shall immediately dispatch Contractor trained personnel to the station to check the alarm (arrival shall be within one (1) hour of the receipt of the alarm). For Entry Alarms the Dispatch Center shall first notify the respective police department for the pump station. The Contractor trained personnel shall not enter the premises without having the pump station investigated by the police.
- Upon arrival at the pump station the Contractor trained personnel shall radio or telephone the Dispatch Center and relay arrival information, including a notation of all alarms flashing on the annunciator panel.
- All information on the incident shall be recorded in the Log Book.
- If possible, the Contractor trained personnel shall make all necessary repairs required to return the pump station to its normal operating condition. (If follow-up repairs are needed in an emergency situation, the Contract Manager shall be immediately notified.)

- The Contractor trained personnel shall notify the Dispatch Center, before departing the pump station, as to status of problem, whether it was cleared or if follow-up work is necessary. (All response information shall be recorded on the Ticket). The Contractor trained personnel shall make sure all non-tagged pumps are on automatic and that all doors and hatches are locked.
- In the event of a Power Failure Alarm the Contractor trained personnel shall monitor the power outage status at regular intervals and notify the Contract Manager and the Engineer if a high water level is eminent. (Temporary Pumping Requirements as stated herein shall be applied.)

Upon receiving a storm warning, from the Engineer, the Contractor shall dispatch sufficient trained personnel to initiate these actions within one hour:

- Check the operating status of each pump station.
- Check the condition of the trash on bar screen(s). Clean if necessary.
- Check the status of the low point inlet for the pump station, if clogged clean.

E. The Contractor shall maintain each existing alarm system including any new ones added to the pump stations. At the beginning of the Contract, the Contractor shall inspect and operationally check each pumping station's alarms system to determine and verify that the equipment, including the station's telephone is operating satisfactory and is in sound condition. The transmitter is to be checked by introducing real and, if necessary, simulated alarms for each wired function. All wired functions are to be identified. The Contractor shall prepare and submit to the Engineer a written report on the alarm status of each pumping station. This work shall be completed by January 31 of the current year. Check the operation of all alarms on a monthly basis.

1. The Contractor shall have the responsibility for proper operation and maintenance of all AEGIS System equipment. The Contractor shall maintain one AEGIS Silent Knight 8526 receiver in the Contractor's Dispatch Center, and all existing alarm transmitter units at each pump station including any new units added during the contract year, and all associated equipment.

2. The Contractor shall assure that all AEGIS units are functioning for call out to the receivers and shall supply and program prom chips as required for each alarm transmitter unit. A 20-second time delay shall be programmed to prevent oscillation of low level alarms due to possible wave action.

3. The AEGIS system shall be configured to execute a 24-hour communication check. This daily check shall be monitored and documented by dispatchers at the Dispatch Center. The weekly report of the communication checks shall be submitted to the Engineer. Any stations having communication problems shall have Tickets created.

4. The Contractor shall be responsible for the cost of the cellular alarm connection for Pump Station No. 6 and Pump Station No. 7.

F. Under heavy rainfall conditions a check shall be made of all pumping stations and their low points on the highways. Whenever the Contractor observes and/or is notified and services a pump station during an event which causes water on pavement condition, the Contractor's representative shall complete and submit to the Engineer, within 24 hours, a Condition Report. The Contractor, upon notification as indicated by the alarm system of any pumping station, shall dispatch trained personnel to the location immediately, and effect emergency repairs or perform such operations that will restore the pumping station to normal operating condition.

G. After each major rainstorm the Contractor trained personnel shall clean the trash rack bin, bar screen, and the area between the trash rack bar screen and the inlet sewer (to the bare concrete floor). In addition, the float and probe sensor shall be checked for proper operation, and any debris shall be removed. A check shall be made of the inlet/catch basins. If the inlet/catch basins are clogged the Contractor trained personnel shall notify the Engineer.

H. The Contract Manager shall be notified of any reports of possible hazardous materials in the pump station wet pits, and he shall be responsible to immediately notify an approved Hazardous Materials Waste Contractor. OSHA safety regulations must be followed at all Pump Stations. Any Contractor personnel entering a pump station shall be properly trained and equipped for confined space operations, and shall be equipped with essential equipment such as voltage and clamp-on current meters of various ratios, tape and block, and marking paint or marker (to note water levels). Also remove and properly dispose of oil, gasoline, or other pollutants from the wet pit as they may occur. Removal shall be other than pumping pollutants into the outflow chamber.

I. All pump stations shall remain in continuous operation while maintenance activities are in progress. Continuous operation may require the Contractor to provide and install temporary portable standby pumps to maintain adequate station outflow capacity. The Contractor shall submit to the Engineer for approval at the Pre-Construction meeting a detailed station operating plan for scheduled maintenance or a work order report for non-scheduled maintenance activities which will directly affect normal inflow and outflow pumping operations. All costs for labor, equipment and materials required by the Contractor to provide continuous pumping operations as described herein shall be paid for as part of Routine Maintenance.

The Temporary Operating Plan submittal shall include a list of suppliers that, on an immediate on-call basis, can provide the Contractor with temporary pumps, or generators, to maintain outflow capacity.

A back-up generator(s) shall be immediately mobilized to each pump station when the Contractor is notified of a high water level or alarm, or water on the pavement due to a power failure. This is considered routine maintenance.

J. No existing station pumps shall be manually operated by the Contractor, for general maintenance operations, including pump inspection, wet pit cleaning, and all other wet pit work requiring abnormally low water levels, with insufficient wet pit water level depths.

K. Maintain pumping station log books as instructed by the Engineer and perform operations as stated. The log book shall not be revised or removed from the station. Furnish two separate log books for each pumping station. One log book shall contain current data, and the other log book shall contain information as recorded in previous years

L. The Contractor shall provide general site and building maintenance at pump stations.

1. The Contractor shall provide general site maintenance at pump stations, including, debris disposal, and removal operations as required to provide safe access to facilities, and to maintain the sites in an aesthetically acceptable condition to the public. Debris disposal weed control work shall be performed in the station areas in the County R.O.W. and shall be conducted to a radius of fifty (50) feet surrounding the building, and on or within five (5) feet of the access driveway.

2. Dispose of any debris found on the grounds. Remove any debris build up in gutters, drains or down spouts.

3. Keep painted floors mopped and concrete floors broom-cleaned.

4. Keep outside of motor and shaft housing and equipment cabinets clean. Wash the interior and exterior walls at least once a year or more often as necessary. All stairways, stairs and railings to be pressure washed once each year.

5. Contractor is to remove graffiti from all pump houses. If a graffiti control barrier has been previously applied it is to be reapplied after removal of the graffiti and is considered part of routine maintenance.

6. Replace any glass blocks or broken windows.

7. Replace all defective and missing caulking anywhere it is found either inside, outside or on the roof. The caulking used shall match the color and type as is existing.

8. The Contractor shall check the building roof during the first six months of the year to assure a clean and sound condition and that the roof drains operate freely. A written report shall be submitted to the Engineer for each pumping station roof by July 15.

9. The Contractor shall repair minor roof leaks at localized areas such as around hatches as part of routine maintenance.

M. Replace or repair defective or inoperative fuses, lamps, relays, switches, motor contactors, circuit breakers, pump alternating controls, overload relays and essential parts, alarm system, control processors, and various control panel components. Replace wires, cables, and conduits that become defective or grounded. Motor repairs required resulting from lubricant emulsification of winding insulation or from failure of overload protection devices shall be completed at the expense of the Contractor.

N. Report to the Engineer in writing as soon as detected, any part of the system which are damaged or inoperative. The Contractor shall determine the cause of the failure, and shall disassemble the unit to the extent necessary and shall repair or replace the damaged part or parts of the systems damaged from any cause whatsoever, all subject to the Engineer's approval. Permanent correction of previously accomplished temporary repairs shall be made promptly. Unless specifically exempted in writing by the Engineer at the Contractor's request, no permanent repair shall take longer than eight (8) weeks to accomplish. In addition to defective component replacement the Contractor shall overhaul any pumping unit having the faulty component to the extent of complete refurbishment or replacement including shafts, bowls, bearings, impellers, propellers, seals, forced lubrication, copper/stainless steel lubrication feed lines and necessary auxiliary equipment all subject to the Engineer's approval. Wet pit cleanings necessary to provide access to damaged pumps for repair purposes shall be at the expense of the Contractor. All work performed under this item with the exception of cleaning the wet pit shall be considered as regular work and shall be in accordance with Article III Regular Work upon the authorization of the Engineer.

O. Rebuild completely as selected by the Engineer any main pumps during the term of this Contract. The work shall include refurbishment or replacement of shafts, bowl, impellers, propellers, and seals. Also included shall be installation of forced lubrication system, copper/stainless steel lubrication feed lines, and necessary auxiliary equipment. All work associated therewith including scheduling shall meet with the approval of the Engineer. Said pumps shall be selected from the main pumps at any of the pumping stations listed under List of Locations. Wet pit cleanings necessary to provide access to the work shall be at the expense of the Contractor. All work performed under this item with the exception of cleaning the wet pit shall be considered as regular work and shall be in accordance with Article III Regular Work-upon authorization of the Engineer.

P. Obtain approval from the Engineer before beginning work on permanent repairs to the system or any parts thereof, and recommend to the Engineer any change. Keep records of repairs and services to all serial numbered pieces of equipment and make them available to the Engineer upon request.

Q. The Contractor shall perform a monthly PS Quick Check at all pump stations. The trained Contractor personnel performing the inspection shall radio the Dispatch Center to create a Ticket for all deficiencies or malfunctions found. The Quick Check shall be performed by the trained personnel, other than the PS crew who are responsible for PS emergency response during off-hours as per the approved emergency response plan. Other personnel shall be trained and deployed for the PS emergency response plan. No release is required for these personnel while they are assigned to these Quick-Check duties and emergency response duties if in accordance with the emergency response plan.

R. PS Monthly Quick Check (check the following Pump Station Items):

1. Are inlets clear of debris? (If clogged telephone or radio the dispatch center to create ticket. The dispatch center must telephone the engineer immediately to request clean up by county maintenance).
2. Is grass cutting required?

3. Is fence secure?
4. Is building roof free of leaks?
5. Are doors, windows, walls, and hatches secure and free of graffiti?
6. Dry pit condition ok?
7. Alarm panel ok? (No alarms holding).
8. Lighting fixtures outages?
9. MCC panel indicator lamps ok?
10. Water level meters at proper levels?
11. Ground detection indication lamps ok?
12. Is trash bin free of debris?
13. Does bar screen need cleaning?
14. Is wet pit free of hazardous materials?
15. Pump On/Off operation ok? (Simulate a call). Check following:
    - Pump operation via Hand-Off-Auto selector switch.
    - Float switches for proper operation.
    - Transducer level sensor for proper operation.
16. Abnormal noise from pumps?
17. Is piping free of leaks?
18. Is pump free of abnormal noise or vibration?
19. Is oil level consumption ok?
20. Is grease operation ok?
21. Are grease and oil lines free of leaks?
22. Is thermostat set properly and heater operating properly?
23. Are dampers and exhaust system ok?
24. Verify gas detector calibration.
25. Fire extinguisher ok? (Check expiration date and record inspection date).
26. For pump stations with submersible pumping units visually check (to the limits allowed by the water level within the wet pit) the following:
    - Check power cords for damage or entanglement.
    - Check guide rails for alignment or clinging debris.
    - Check fall prevention system for anything which may compromise its performance.
    - Check that equipment access hatches operate easily.

- Check valve vault for accumulation of water.
- Check valve vault sump pump for proper operation.

S. The Contractor trained personnel shall perform a Monthly Inspection:

1. Pump Operation Inspection (Under no circumstances shall the pump station be drawn down to a low level or past the designated stop elevation.):

   - Operate each pump and check alternator or selector switch for proper sequence in accordance with recommended manufacturer's procedures.
   - Set the selector switch on the pump with the lowest number of hours as the lead pump.
   - Record Oil Consumption.
   - Operate each unit once a month noting the current draw and compare with the motor plate and note any deviation and/or any abnormal operating sounds.
   - Take Flow Meter Reading.
   - Record Number of Starts and Hours Run.

2. Keep oil reservoirs filled within the levels recommended by the manufacturer. Use the proper grade oil as specified by the manufacturer.

3. Keep motor bearings properly oiled or greased as specified by the manufacturer for the type of bearing. When motors are lubricated, care shall be taken to insure that no lubricant gets on the motor windings or electrical wiring. In addition, the air release valves/pipes shall be inspected (replace when required) and cleaned.

4. Packing glands shall be repacked if leakage occurs. Excessive tightening in lieu of repacking is prohibited.

5. All Compressed air tanks shall be maintained and kept charged at all times during the course of the Contract. The Contractor shall not remove a tank from the station for recharging without immediately replacing same with a temporary spare. All fire extinguishers shall be maintained and kept charged at all times, and shall be recharged annually in January of each year.

6. Check flow meters.

7. The Contractor trained personnel shall exercise the transfer switch 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 Log Book.

T. Keep heating, ventilating and air conditioning equipment properly maintained at all times, including air induction equipment. Replace all air induction filters as required and record in the Pump Station Log. Check each control panel and transfer switch for proper operation once every two weeks. All oil reservoirs shall be checked and filled within the levels recommended by the manufacturer. All filters and oils shall be changed in accordance with the manufacturer's specifications. The Contractor shall repair or replace any part of the heater and ventilating systems when they become damaged or inoperative from any cause whatsoever and shall be considered part of routine maintenance.

U. The Contractor trained personnel shall perform a semi-annually inspection:

1. The Contractor shall remove, inspect and service all submersible pumps. Service work shall include: visually inspect pump intake and impeller for clogging, changing oil, inspect oil reservoir for contaminants, shall check and clean air release pipes/valves, and shall flush the cooling system from debris. When removing submersible pumps check that pumping unit slides up the guide rail system smoothly. The wet pit submersible pumps shall be washed down with a pressure-hose, checking and adjusting clearance between the impeller and wear ring in accordance with the manufacturer's instructions. Upon reinstallation of submersible pumps check that pumping unit engages its discharge elbow to ensure proper seal between pump discharge flange and base elbow flange. The results of the inspection and service shall be recorded by the Contractor and a copy submitted to the Engineer. Note: Clean potable water shall be used for pressure-hose wash. For those pump stations which do not have hose bibs, Contractor to coordinate with local municipality for use of nearby fire hydrant. Contractor responsible for any fees associated with the use of the fire hydrant.

2. The Contractor shall inspect and service all vertical pump motors. Contractor trained personnel shall check motor heaters and clean the motor inside and out, wiping off dirt, dust, oil and water from external surfaces of the motor. Any dust or debris from the ventilating air inlets shall be removed. The motors shall be cleaned internally by blowing with clean, dry compressed air.

3. Operate all gates and valves completely at least twice each year to prevent sticking. For stations with bypass piping and valving make provisions before operating bypass valving to insure station flooding will not occur. The area between the sewer and the trash rack and the trash rack itself shall be kept free of debris. Any debris that is removed shall be disposed of outside the County Right-Of-Way in accordance with all Federal, State, County and Local regulations. All gates and valves requiring lubrications shall be lubed with environmentally safe grease. The Contractor shall check the actuators' lubrication consistency and level. If required, it shall be filled or replaced. All electrical connections shall be inspected and tightened. The Contractor shall also check for mechanical damage.

V. The Contractor shall perform vibration analysis on all pumps semiannually. The first set of readings shall be taken concurrently with the annual pump capacity tests and again during the month of October.

The company performing the vibration testing must specialize in vibration analysis and balancing and have a minimum of ten years experience in providing these services. Technicians collecting vibration data shall perform their own analysis and generate the report of findings including visual observations. Technicians should have a minimum of ten years experience in vibration analysis and balancing or a Level II Vibration Certification from the Vibration Institute or its equivalent.

1. Equipment used for testing must be a current model Smart Meter Plus Model 1330F or better with compatible and current software. Software must be capable of vibration data trending, and advanced analysis functions. All vibration data for this project is to be stored and maintained by the company providing the service.

2. Testing will also be required on new installation or repaired pumps at start up at no additional cost to the County.

3. Vibration readings will be recorded at or as near to each accessible bearing housing on each pump. At each bearing housing vibration data will be recorded a minimum of two directions with the outboard motor bearing requiring three directions.

   Example:

   Vertical Pump:

Motor Outboard Bearing		Motor Inboard Bearing	
1.	Vertical	1.	North/South
2.	North/South	2.	East/West
3.	East/West		

4. Three vibration readings must be taken and stored in each direction.

   - IPS Velocity spectrum from 120 CPM to a minimum of 10 orders of pump operating RPM or a maximum of 36,000 CPM with a minimum of 400 lines of resolution and two averages.

   - GS Acceleration Spectrum from 120 CPM to 300,000 CPM with a minimum of 400 lines of resolution and two averages.

   - Time waveform stored in conjunction with GS acceleration spectrum.

5. Vibration data must be analyzed and a report generated within five business days from completion of testing. Report must list all equipment tested and state whether vibration levels are acceptable or not. If vibration levels are found to be above acceptable levels then report must state clearly and concisely what corrective action needs to be taken. If unacceptable vibration levels are due to an unbalance condition then an in place balance must be attempted before proceeding with any other corrective action.

The following is the criteria that will be used in determining if vibration levels are acceptable.

- Vertical Centrifugal Pumps greater than 1000 RPM 0.3 IPS peak overall vibration or lower. Where motor speed is below 1000 RPM, the 0.3 IPS velocity "evaluation point" shall be decreased by 10% for each 100 RPM below one-thousand (1,000).
- The above values are based on equipment not mounted on vibration isolators.
- If equipment is mounted on isolators increase the values by 30%.
- Tests must be performed with a flooded suction that does not cause vortexing or cavitation. Every time a test is conducted, it must be made with the same amount of pump submergence as the previous test for that pump. When excessive vibration has been indicated, as described above, the motor shall be uncoupled from the pump and another test shall be made for only the motor. The inspection report shall contain the Manufacturer, Model Number, and serial number of the pump.

W. The Contractor trained personnel shall perform an annually Inspection:

The Contractor shall conduct an annual comprehensive pumping station inspection. The Engineer, a pump station repair crew member, and the assigned patrol person shall be present at the inspection. The inspection results shall be documented by the Contractor and a copy submitted to the Engineer. A re-inspection will be scheduled by the Engineer following receipt of notice by the Contractor of completion of all deficiencies. Failure to correct noted deficiencies in accordance with Contract Specifications will result in withholding of Monthly Routine Maintenance Payments for the particular station noted. The Following tests are to be included:

1. AEGIS Alarm System

2. Water Level Monitoring System Inspection: The Contractor trained personnel shall inspect the primary, and where applicable, the secondary water level monitoring Systems in each station. The Engineer shall be present for each inspection. This work shall consist of physically measuring the water level in the wet pit and comparing that value with the bubbler system implemented into the MCC, or other water level monitoring system. Any deviations over 1/2 foot that are found shall have appropriate Tickets issued. This inspection shall also include the inspection of the trash rack.

3. Wet Pit Inspection: The Contractor trained personnel shall complete the wet pit inspection of all pump stations. 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 following inspections are required:

   - Inspect all grease lines to ascertain if any are broken or clogged.

- Inspect the integrity of all equipment attached to the structure such as the air bell, air line and the floats.
- Inspect the floats for operational efficiency, and clear them of any debris.
- Inspect the probes for operational efficiency, and clear them of any debris.
- Take a photograph (35 MM or Digital) 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.
- Inspect the silt accumulation.
- Visually inspect the inlet sewer from inside of the pumping station.
- Maintain existing wet pit lighting, clean lens and reflectors.
- For those stations with submersible pumping units inspect the following:
  - Base elbow.
  - Mating flanges of pumping unit and base elbow.
  - Guide rail system.
  - Discharge piping.
  - Power, float, transducer cords.

Each report, including photo album, shall be included with the routine maintenance monthly submittal. Any deficiencies found on this inspection shall have appropriate Tickets issued.

4. Back-up Control System Inspection: Contractor trained personnel shall inspect the secondary control system within all pump stations. The Engineer shall be present for each inspection. This work shall include inspection of all bubbler, electrode, and float Systems, whichever secondary control system is utilized. 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. Any deficiencies found on this inspection shall have appropriate Tickets issued.

5. Electrical and mechanical equipment inspection.

6. Pump Capacity, Motor Current, Voltage, Moisture, and Megger Tests shall be witnessed by the Engineer and recorded by the Contractor. The Contractor shall furnish all necessary instruments. The Contractor shall megger all motor windings and feeder cables. Additional pump capacity, motor current, and voltage tests shall be made after a new or rebuilt pump is installed and the test results entered into the log book and a copy made for the Engineer. Any insulation resistance reading found to be below one (1) megohm will require the Contractor to determine the source or cause of the low reading and make prompt repairs as necessary.

7. Oil Analysis: The Contractor shall obtain suitable test containers from the lab facility which has been approved by the Engineer. Samples of oil shall be taken from the motor upper and lower bearing compartments, dry pit/wet pit submersible pumps. Samples shall be taken after running the motor or pump within fifteen minutes after pump is turned off. This work shall be done with the capacity and vibration test. The oil shall be drawn from the equipment reservoir. The oil should drain for a few seconds before taking the sample. A minimum of two (2) ounces of oil is needed for analysis. Never use the same tube to draw an oil sample from two different oil compartments in the above listed equipment.

   The Contractor shall provide the laboratory with the brand and type of oil, type of equipment from which the oil has been drawn, number of days since the last oil change, and any suspected abnormalities in the equipment. Each sample of oil shall be labeled, so that it describes the distinct location from which it was taken. The Contractor shall ship the oil samples to the lab facility within one (1) month after they are taken. The incurring lab reports shall be submitted to the Engineer on a R/W compact disk with operating software that can utilize existing data for trending. Based upon the lab report the Engineer may call for additional analytical ferrography testing. The Engineer may call for the oil to be changed if pertinent lab results conclude that the oil is contaminated.

   All charges for lab work, shipping, and changing of oil etc., shall be covered under routine maintenance. The Contractor shall change the oil after the above testing has been completed and its determined that the oil is contaminated. A wear particle analysis shall be conducted by the lab facility which includes: Wear metals, Contaminants, Additives elements, Viscosity, Solid Percent Volume, Water Percent Volume, Particle Counting and Direct Reading Ferrography.

   Any deficiencies found on this inspection shall have appropriate Tickets issued, and shall be repaired as part of routine maintenance. A copy of-the results of the capacity test shall be submitted to the Engineer with the monthly routine submittal book.

8. Test all main circuit breakers, branch circuit breakers, and motor starters. Furnish the test set and operator along with all necessary fittings, cables, and connectors to connect the test set to the breakers. Testing shall consist of visual and electrical tests as required by the Engineer. Overcurrent relays are to be set as directed by the Engineer. Copies of test results shall be submitted to the Engineer. Prior to testing, a general clean up of the buses and cabinets are required.

9. Flow Meter Inspection: The Contractor trained personnel shall take the meter heads out of the line and check the mechanism, note the condition of then pipe and straighten the vanes. The meter head shall be examined, cleaned, and parts replaced per manufacturer recommendations. Any deficiencies found on this inspection shall have appropriate Tickets issued. The transmitter and receiver shall be tested and calibrated by a factory certified and/or approved representative.

10. Motor Control Center: The Contractor trained personnel shall perform the following inspection:

i. Clean enclosure and control equipment by blowing out with low air pressure or vacuuming.

ii. Check and clean contacts, relays and timers and visually inspect for damage or out of adjustment parts. Remove all dust off of electrical devices and equipment.

iii. Check motor control center indicating lamps and all switches and push buttons.

iv. Circuit Breaker Maintenance:

- Check connections
- Exercise breaker.
- Check trip setting.

v. Motor Starter Contact Maintenance:

- Check contacts and burnish or replace, if necessary
- Check coil and clean.
- Inspect arc chute for cracks or burns.
- Check contact pressure and measure contact resistance on all 3 phases.

vi. Oil Dash Pots:

- Check oil levels
- Inspect settings
- Inspect wiring/conductors for overheating and discoloration
- Checks sizing of motor overload heaters
- Check tightness of wire terminations and connections
- Check for proper labeling, provide and install missing labels
- Check wire tags/labels, provide and install missing tags or labels
- Check fans for proper operation and clean filters
- Check fuse disconnects for proper operations, keep fuse clips clean and tight
- Check fuses for proper size, and overheating
- Test equipment ground system of the station

11. The Contractor shall test each gas detection system. This test is to be conducted by a manufacturer approved factory trained sales and service company to test and calibrate a gas detector system as specified herein for a pumping station. The Contractor shall also keep all tanks of gas needed for testing and calibration filled at each pump house. Any time a gas detector fails it shall be replaced as routine maintenance at no additional cost to the County.

    The factory trained sales and Service Company shall furnish all tools and test equipment to complete the work as specified herein. Service Company personnel shall be OSHA certified and equipped with proper safety equipment to enter areas where hazardous gases might be present. The Contractor shall provide access to the pumping station for the factory sales and Service Company and assistance in reaching any difficult locations within the pumping station.

    The service company shall complete the following procedures.

    - Clean all detectors and hydrophobic filters.
    - Check calibration of all detectors and adjust each, if required
    - Replace sensing element if calibration can no longer be property performed. This work shall be completed at the time of testing.
    - Actual alarming of the detectors and sensors to ensure reliability.
    - Check gas detector internal and power supply wiring for grounds and shorts.
    - Check AEGIS system for alarm acknowledgment
    - Check all fans and dampers for start-up and/or shut down.

    The factory trained sales and Service Company shall be Automatic Suppression Systems Inc., or Engineer approved equivalent. A written report shall be submitted to the Engineer, which shall contain any pertinent recommendations for the system. The furnished gas sensor shall be equivalent or superior in quality to the existing gas sensor and be rated and approved for its intended use by the national FM and CSA standards. The removal and reinstallation of the sensor shall comply with manufacturer specifications.

X. A work order report is to be completed for each corrective maintenance item reported or found in pumping station system equipment. Each report is to be initiated by a patrol person or pump station service crew member with final completion work signed off by the general foreman responsible for coordinating all Pump Station Maintenance. Copies of all initial, interim and final completion reports are to be collected, organized and forwarded to the Engineer each month. Reports initiated and/or updated during the month shall be submitted to the Engineer no later than the 5th day of the following month.

Item DX-1 SPECIAL CLEANING OF WET PITS

Under this item for a unit price per pumping station wet pit as shown in the schedule of prices, and when directed by the Engineer in writing following a determination by him for the need of cleaning, the Contractor shall clean out pumping station wet pits. This item of work shall not be confused or construed to be in conflict with Routine Maintenance which requires wet pit cleanings by the Contractor at his expense. The determination by the Engineer for the need to clean wet pits will be based upon the Contractor's inspection report, the Engineers visual inspection, and other pertinent data supporting the need for wet pit cleaning. As shown in the Schedule of Prices, it is estimated that each wet pit shall be in need of cleaning at least once during the effective period of this contract.

Also included is providing all labor, material, traffic control, safety, transportation, vacuum equipment, furnishing water and equipment to power wash and clean CCHD pumping station wet pits, walls, floors, beams, grating, railings, piping, ladders, and stairs. All removed material shall be disposed of outside the County Right of Way and in accordance with the local EPA rules and regulations. Areas outside the bar screens/trash racks up to the inlet sewer shall be cleaned at the same time in accordance with Article III. This work is included with pumping station wet pit cleaning.

Item DX-2 ASPHALT DRIVEWAY PAVEMENT

The Contractor shall furnish all required labor, materials, equipment, sawcutting and all other work necessary to construct a new twelve (12) foot asphalt driveway at locations as shown on the plans or as directed by the Engineer in accordance with the State of Illinois Standard Specifications for Road and Bridge Construction (SSRBC) and this special provision.

Existing pavement and soil shall be excavated to a depth of twelve (12) inches. This material will not be re-used on this project. Exposed grade will be prepared per Section 301 of the SSRBC. Aggregate Base will consist of eight (8) inches of RAP (Reclaimed Asphalt Pavement). RAP is defined as;

RAP is reclaimed asphalt pavement resulting from cold milling or crushing of an existing dense graded hot-mix asphalt pavement. RAP must originate from routes or airfields under federal, state or local jurisdiction. The Contractor shall supply documentation that the RAP meets these requirements.

Aggregate Base shall meet the requirements of Section 351 of the SSRBC.

The RAP will be primed with Bituminous Materials (Prime Coat) and overlayed with 2 ¼ Inches of Bituminous Concrete Binder Course, IL-19.0, N50 and 1 ¾ inches of Bituminous Concrete Surface Course, Mix "C", IL-12.5 or 9.5, N50. Superpave mixes will have the following mix requirements:

	Surface	Binder
AC Type	PG 64-22	PG 64-22
RAP % (max.)	10%	15%
Design Air Voids	4% @ 50	4% @ 50

The driveway shall be constructed with a ¼" to 1' transverse slope from centerline to edge.

This work shall be paid for at the contract unit price per **SQUARE YARD** for ASPHALT DRIVEWAY PAVEMENT which shall include payment in full for all work described herein. Each square yard of Asphalt Driveway Pavement or increment thereof, as approved by the Engineer, shall be counted as a unit of payment.

Item DX-3 EXTERIOR BRICK COATING

This item shall consist of furnishing and applying coating to exterior concrete and/or glazed brick as specified herein and designated by the Engineer per pumping station. The coating shall be a single component, moisture curing aliphatic urethane that is chemical and graffiti- resistant, similar to Keeler& Long MC-ANTIGRAFFITI CLEAR or Engineer approved equivalent.

The Contractor shall furnish a paint manufacturer approved painting contractor. The painting contractor shall assure that all surfaces are clean and free from grease, dirt, wax, or concrete sealers prior to application. The painting contractor may use a brush, roller, or sprayer as long as application compiles with the manufacturers' application guide. If required the paint contractor may have to apply multiple coats to obtain manufacturers' recommended thickness of 2.0 to 3.0 mils DFT.

A square foot of coating applied to a pumping station in accordance with manufacturer's specifications, complete with clean-up and approval of the Engineer, shall count as a unit for payment.

This work shall be paid at the contract unit price per **SQUARE FOOT** for EXTERIOR BRICK COATING, which shall be payment in full for the work described herein.

Item DX-4 INFRARED THERMOGRAPHY INSPECTION SERVICE

The Contractor shall make all arrangements to procure the services of an infrared thermography service company to inspect the pumping station electrical system as specified herein and approved by the Engineer.

The service company shall use the following equipment:

Infrared Camera:

1. Shall have a hi-resolution image provided by over 78,000 Platinum-Silicide detectors in a 244 x 320 pixel focal plane array.

2. Shall operate in the 3.6 to 5.0 micron wavelength.

3. Shall discern temperature differences of 0.1 degrees C @ 30 degrees C.

4. Shall detect thermal temperatures from -10 to 500 degrees C with optional filters available for temperatures up to 1500 degrees C.

5. Shall have an accuracy of temperature measurement at +/- 4 degrees C from -20 to 100 degrees C and at +/- 4% of reading at temperatures above 100 degrees C.

6. Shall have a spatial resolution of Imrad IFOV which provides a spot size of less than 0.4 inches at 25 feet using the standard lens.

7. Shall have an IR Frame Rate of 60 Hz.

8. Shall include a personal battery belt with Lead-Calcium batteries allowing for immediate charging even if partially charged. Batteries should provide at least 4 hours of run time.

9. Shall have a system power voltage of 12 VDC.

10. Shall have a detector cooled by an internal closed-cycle Stirling cooler.

11. Shall have the following operator controls:
    - Automatic or Manual gain and level.
    - Display in either degrees C or F.
    - Remote VCR control.
    - Emissivity compensation control.
    - Background temperature compensation.
    - Peak/Temperature hold.
    - Standby mode.
    - Pen-based field computer for route management and data logging.
    - Video monitor/recorder.
    - Video camera.
    - All necessary cabling/adapters for component connection.
    - Frame grabber card.

The Contractor shall provide all labor, equipment and general services to schedule and provide all necessary incidental work at each designated pump station location to assist in conducting a comprehensive and thorough thermography inspection of various electrical systems.

The Contractor shall make arrangements to hire a specialty service company to perform the actual thermography service including the preparation and furnishing of a written report and video tape of each pump station's condition. For each designated pump station to be inspected, the Contractor shall provide all service necessary to conduct this special testing. This work shall consist of, but not be limited to, the following duties:

1. Supervise ingress and egress of each station during the presence of the specialty service company representative.

2. Store water necessary to conduct tests on all pump equipment. (This may require work on multiple days.) Maintain water level necessary for testing, not to exceed critical high water elevation. Energize and deenergize equipment under test by the specialty service company representatives.

3. Open and close all enclosures that limit direct line of sight to the electrical device being inspected.

The approved service company shall perform inspection work on the following pumping station Equipment: Motor control center, Motor controls, Motors, Motor feeder and connections, Motor contacts and relays, Switch gear, Control panels, Wiring terminations and Motor splices.

The above list is for information only. The inspection shall include all electrical devises in the pumping station System.

The Contractor shall furnish an infrared thermography report. The report shall identify all faulty devices and shall include the following parameters:

- Device (component) description.
- Fault description.
- Thermal image in color.
- Visual image.
- Fault location.
- Priority (relative degree of fault or problem).
- Temperature information (degrees F).
- Recommended actions.

Approximately two (2) working days following the completion of all testing at each station, the Contractor shall furnish to the Engineer a completed test result summary report. Work Order Tickets shall have been initiated and cross-referenced to all items requiring corrective action as a result of the tests and evaluation.

This item shall be paid at the contract unit price per **HOUR** for INFRARED THERMOGRAPHY INSPECTION SERVICE, which shall be payment in full for the work described herein.

Item DX-5 HID LIGHT FIXTURE

This item shall consist of furnishing and installing a HID light fixture complete with all necessary fittings and seals as specified herein at a designated pump station.

The fixture shall be an explosion proof; 150 W MH Multi-tap (120-208-240-277 V) and shall be rated at approximately 16,000 lumens. The high intensity discharge fixture shall come with porcelain sockets and lamp retaining mechanisms to resist loosening of the lamps from vibration or thermal effects. The HID ballasts shall be of a high power factor type when ever such type is available. The ballast shall also be incorporated into the light fixture and be suitable for starting at -20 degrees F.

An aluminum guard shall be supplied for the fixture. If necessary, the fixture shall come equipped with manufacturer specified fuses. A dome reflector (standard or 30 degree angle), coupling, bushing, frames, hangers and all special fittings shall be required to complete the installation. Lighting fixture shall be installed in accordance with manufacturer's recommendations. The fixture will be pendent, ceiling or bracket mounted and shall conform with NEC and standard 1572. The fixtures shall be mounted approximately 2 feet from the top of the wet pit or on the ceiling of the wet pit the exact location of the fixture will be designated by the Engineer.

Pendent (stem mounted) fixtures shall be suspended by rigid stems such as threaded conduit or rods and ball-and-socket type hangers which are rated for the weight to be supported and which will allow the fixture to hang plumb.

The fixtures shall be grounded via green-insulated grounding conductor extended and connected to the fixed, grounded raceway system. The stem and hanger assembly shall not be assumed to be an adequate ground. All wiring entering the fixture housing must be suitably rated for the fixture temperature. Fixtures shall not be used for through wiring unless the wiring compartment is UL Listed for such use. The fixture shall have its own circuit breaker or fuses that will meet NEC requirements. A three-way switch shall be placed at the point of entry to the wet well and another switch in the motor room. All cored holes in concrete walls and floors shall be sealed.

This work shall include any equipment and/or appurtenances required to complete the fixture installation.

Product data submitted for approval shall include complete manufacturer's literature and complete ballast data demonstrating compliance with all specified requirements. Submitted information shall include fixture installation items such as frames, hangers and all other appurtenant equipment.

This work shall be paid at the contract unit price **EACH** for HID LIGHT FIXTURE, which shall be payment in full for the work described herein

Item DX-6 SWITCH GEAR SYSTEM INSPECTION

This item shall consist of furnishing of services and equipment to inspect the switchgear, including the circuit breakers, bus, structure, instrument transformers and other devices, at a pump station. The services shall be provided by a factory trained field service technician.

Preventative maintenance testing and inspection shall be performed according to the following inspection and test procedures.

A. Switch Gear and Switchboard Assemblies:

1. Visual and Mechanical Inspection:
   - Inspect the assemblies for physical damage.
   - Inspect bussing compartment. Check tightness of accessible bolted bus joints by torque wrench method. Check insulators for cracks and contamination.
   - Verify all electrical, Key, and mechanical interlock Systems for correct operation.
   - Make closure attempt on locked open devices. Make opening/withdrawal attempt on locked closed devices.
   - Check mechanical operations of circuit breaker in cell and activate auxiliary devices.
   - Check ease of operation, proper grounding and interlock.
   - Inspect circuit breaker for contamination, physical damage.
   - Verify all LEDs are working when the system is operating.
2. Electrical Tests:
   - Insulation resistance of each bus section is measured phase to phase and phase to-ground.
   - Electrical operation of the circuit breaker is checked in the test and connected position.
   - The control power source is checked.
   - The circuit breaker control scheme is tested.
   - A phasing check is made on double-ended and/or emergency source switchgear at tie points to ensure correct bus phasing.

B. Circuit Breakers:

1. Visual and Mechanical Inspection:
   - Check mechanical operation.
   - Cell fit and element alignments are checked.
   - Check bolt torque levels are in accordance with manufacturers or U.S. Standards specifications.
   - Check arc chutes for foreign matter, cracks and secure installation.
   - Clean primary contact surfaces and lubricate if required.
2. Electrical Tests:
   - Measure contact resistance.

- Check insulation résistance at 1000 volts D.C. for one (1) minute from pole to pole and from each pole to ground and across open contacts for each phase.
- Determine minimum long-time pick-up current and delay time at 300% of pick-up by secondary injection.
- Determine short-time pick-up and time delay by secondary injection.
- Determine instantaneous pick-up current by secondary injection.
- Determine ground fault pick-up current and time delay by secondary injection.
- Trip unit reset characteristics are verified.
- Final settings are made in accordance with Engineer's prescribed settings.
- Auxiliary devices, such as under voltage relays, blown main fuses detector, shunt close, shunt trip, spring charging motor and auxiliary contacts are activated to ensure operation as applicable.
- All functions of the trip units shall be tested with test kits.

C. Metering and instrumentation:

- Verify meter connections in accordance with single line meter and relay diagram.
- Inspect for physical damage.
- Electrical tests.
- Ammeter accuracy is checked using current injection. Voltmeter accuracy is checked.

D. Programmable Logic Controls:

- Visual and mechanical inspection.
- Inspect programmable controller installation for physical damage.
- Inspect for proper grounding.
- Check for power wiring.
- Check all terminal wiring.
- Check all I/O wiring.
- Check LI/RI wiring.
- Verify correct switch settings on all modules.
- Electrical tests.
- Inspect sequence of operation.
- Verify power supply voltages.
- Verify operation of selected I/Os.
- Verify resistance of LI/RI cable.

- Verify input voltages.
- Verify resistance of system ground.

Record of inspection and test results will be kept. A check-off list will be used, detailing work performed and results obtained. The formal report produced will list equipment as found, technical service/assistance rendered, final equipment settings and recommendations. A report copy shall be submitted to the Engineer. Each Switchgear System Inspection tested inspected and approved by the Engineer shall be counted as a unit for payment.

This work shall be paid at the contact unit price **EACH** for SWITCHGEAR SYSTEM INSPECTION, which shall be payment in full for the work described herein.

Item DX-7 FLAP GATE REPLACEMENT

The work shall consist of the removal and disposal of five (5) existing flap gates and furnishing and installing five (5) complete new elastomeric check valves and air/vacuum valves for the County Pump Station No. 1. Contractor need to meet all the requirements shown on the following pages of Flap Gate Replacement Plans.

The new elastomeric check valves shall be Series 35 as manufactured by Tideflex Technologies or equal. Four (4) 30" and one (1) 6" elastomeric check valves shall be installed in the existing pump discharge chamber. Contractor shall remove four (4) existing 30" cast iron flap gates and one (1) existing 6" cast iron flap gate and dispose. Contractor shall furnish and install four (4) new 30" Series 35 elastomeric check valves and one (1) new 6" Series 35 elastomeric check valve onto the existing cast iron wall thimbles. Contractor shall confirm existing bolt pattern of wall thimble and match new check valve flange bolt pattern with existing thimbles. Contractor shall furnish and install four (4) new 30" saddles with 6" outlet tee connection, 6" flanged ductile iron piping and 6" APCO Model No. 153 air vacuum valves on the main pump discharge piping, one (1) 2" APCO Model No. 144 air/vacuum valve, 6" saddle with 2" outlet tee connection and 2" threaded galvanized steel pipe on the 6" discharge piping. The contractor shall excavate and expose the north elevation of the foundation wall and core (4) 12" holes and (1) 6" hole to allow the the Air vacuum valves to be installed outside, above grade with the necessary 6" and 2" piping and fittings. All disturbed areas to be returned to preconstruction existing conditions.

This work will be paid for at the contract unit price **LUMP SUM** which price shall be payment in full for the FLAP GATE REPLACEMENT, which price shall be payment in full for furnishing and installing all valves, piping and saddles, supports, anchors, excavation, core drilling and restoration etc. and shall include the removal and disposal of any gates being replaced by this item.

COUNTY HIGHWAY	FISCAL YEAR	SHEET NUMBER	TOTAL SHEETS
		3	4

SECTION

GENERAL NOTES

1. UTILITIES EXIST IN THE AREA WHERE WORK IS PROPOSED. ACTUAL DEPTH OF UTILITIES ARE UNKNOWN. SHOULD ANY GIVEN UTILITY INTERFERE WITH THE PROPOSED WORK, PIPE ROUTING, ETC., THE CONTRACTOR SHALL AT NO EXTRA COST TO THE OWNER, RESOLVE ANY AND ALL INTERFERENCE PROBLEMS. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF WORK AS REQUIRED.

2. BEFORE STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL "JULIE" AT 811 OR (800) 892-0123 TO HAVE ALL BURIED UTILITY LINES AND FACILITIES FIELD LOCATED (48 HOURS NOTIFICATION IS REQUIRED).

3. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS AND SPECIFICATIONS:

   A. "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", AS PREPARED BY IDOT

   B. SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS, AS PREPARED BY IDOT.

   C. ILLINOIS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (MUTCD)

   D. THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS

   E. NATIONAL ELECTRIC CODE

   F. OWNER AND MUNICIPAL CODES/STANDARDS

   WHERE CONTRADICTIONS OCCUR BETWEEN THE ABOVE LISTED SPECIFICATION, CODES AND/OR CONTRACT DOCUMENTS, THE MORE STRINGENT SHALL APPLY.

4. THE CONTRACT DRAWINGS AND SPECIFICATIONS ARE NOT INTENDED TO SHOW ALL DETAILS OF WORK TO BE PERFORMED OR EQUIPMENT TO BE SUPPLIED. THE INTENT OF THE CONTRACT DRAWINGS AND SPECIFICATIONS IS TO ILLUSTRATE THE CONCEPTUAL DESIGN AND LAYOUT. THE CONTRACTOR SHALL BE KNOWLEDGEABLE AND REGULARLY ENGAGED IN THE TYPE OF WORK DESCRIBED BY THESE CONTRACT DRAWINGS AND SPECIFICATIONS AND SHALL BE RESPONSIBLE FOR UNDERSTANDING THEIR INTENT. ANY WORK TO BE PERFORMED OR ITEM OF EQUIPMENT TO BE SUPPLIED WHICH IS NOT SPECIFICALLY CALLED FOR BY THESE CONTRACT DRAWINGS AND SPECIFICATIONS, BUT WHICH IS NECESSARY TO PROVIDE A COMPLETE AND SUCCESSFUL WORKING SYSTEM SHALL BE INCLUDED IN THE CONTRACTOR'S SCOPE OF WORK AT NO ADDITIONAL COST TO THE OWNER.

5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALL MATERIAL QUANTITIES AND APPRAISE HIMSELF/HERSELF OF ALL CONDITIONS. THE CONTRACT PRICE SUBMITTED BY THE CONTRACTOR SHALL BE CONSIDERED AS THE TOTAL COST FOR THE COMPLETE PROJECT. NO CLAIMS FOR EXTRA WORK BILL BE RECOGNIZED DUE TO THE CONTRACTOR'S FAILURE TO UNDERSTAND THE SCOPE OF WORK.

6. THE WORK PERFORMED UNDER THIS CONTRACT SHALL IN NO WAY INTERFERE WITH THE NORMAL OPERATION OF ANY EXISTING UTILITY SERVICES. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ITEMS OF EQUIPMENT REQUIRED TO MAINTAIN SUCH NORMAL OPERATION AT NO ADDITIONAL COST TO THE OWNER. THE COST ASSOCIATED FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE CONTRACT.

7. ORIENTATION OF PIPING, CONDUITS, EQUIPMENT, ETC. MAY VARY. CONTRACTOR SHALL FIELD VERIFY PIPING/CONDUIT ROUTING AND EQUIPMENT LOCATIONS WITH THE OWNER'S REPRESENTATIVE.

8. ANY AND ALL DEWATERING REQUIRED TO KEEP EXCAVATIONS DRY AS WELL AS BRACING AND SHORING EXCAVATED WALLS DURING UTILITY OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COMPLIANCE WITH THE ABOVE WILL BE INCIDENTAL TO THE UTILITY INSTALLATIONS.

9. SOIL EROSION PROTECTION SHALL BE IN ACCORDANCE WITH IEPA STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. ALL DISTURBED AREAS SHALL BE FINE GRADED, TOP SOIL RESTORED (MIN. 4 INCHES), AND SOD APPLIED UNLESS OTHERWISE SPECIFIED ON THE PLANS.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEANS AND METHODS AND TECHNIQUES OF CONSTRUCTION. OWNER'S REPRESENTATIVE/ ENGINEER'S REVIEW OF SAME DOES NOT RELIEVE CONTRACTOR OF THIS RESPONSIBILITY. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY AND JOB SITE SAFETY.

11. ALL EQUIPMENT AND MATERIALS PROVIDED SHALL COMPLY WITH OWNER'S DESIGN REQUIREMENTS.

RECORD DRAWINGS & UTILITY NOTES

1. CERTAIN INFORMATION SHOWN ON THESE DRAWINGS HAS BEEN OBTAINED FROM DRAWINGS OF RECORD. CONTRACTOR SHALL VERIFY SUCH INFORMATION PRIOR TO ACTUAL START OF WORK. WHERE DISCREPANCIES ARE DISCOVERED THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE. FAILURE BY THE CONTRACTOR TO IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF SUCH DISCREPANCIES SHALL RESULT IN THE CONTRACTOR BEARING THE FULL BURDEN OF ALL RISKS/COSTS ATTRIBUTED TO THE DISCOVERED DISCREPANCY.

2. EASEMENTS FOR THE EXISTING UTILITIES, BOTH PUBLIC AND PRIVATE, AND UTILITIES WITHIN PUBLIC RIGHT-OF-WAYS ARE SHOWN ON THE DRAWINGS ACCORDING TO AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION IN THE FIELD OF THESE UTILITY LINES AND THEIR PROTECTION FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS.

3. THE EXISTING BURIED UTILITY LINES, PUBLIC AND PRIVATE, ARE SHOWN ON THE DRAWINGS ACCORDING TO INFORMATION AVAILABLE FROM RECORDS. THE LOCATION AND DEPTH OF EXISTING BURIED UTILITY LINES SHOWN ON THE DRAWINGS IS THEREFORE APPROXIMATE AND MAY VARY FROM FIELD CONDITIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION AND DEPTH OF BURIED UTILITY LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES TO MARK THE LOCATION OF BURIED UTILITIES IN THE FIELD BEFORE BEGINNING EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITY LINES AND SHALL REPAIR ANY DAMAGED UTILITY LINES AT HIS/HER EXPENSE.

4. THE CONTRACTOR SHALL BE REQUIRED TO ASCERTAIN THE LOCATIONS OF UTILITIES AND EXERCISE CARE DURING HIS CONSTRUCTION OPERATIONS SO AS NOT TO DAMAGE THEM IN ACCORDANCE WITH ARTICLE 105.07 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

FINAL ACCEPTANCE AND INSPECTION

1. UPON COMPLETION OF ALL SPECIFIED WORK AND THE INSTALLATION OF EQUIPMENT, THE CONTRACTOR SHALL PERFORM FINAL TESTS OF THE EQUIPMENT TO VERIFY THAT THE INSTALLATION PERFORMS SATISFACTORILY. ACCEPTANCE TESTS CONDUCTED ON THE COMPLETED INSTALLATION WILL BE WITNESSED AND SUBJECT TO THE APPROVAL OF THE OWNER. NO SEPARATE PAYMENT WILL BE MADE FOR FINAL TESTING. THE COST OF FINAL TEST SHALL BE CONSIDERED INCIDENTAL TO THE WORK. AS A MINIMUM, TESTING SHALL INCLUDE (BUT NOT BE LIMITED TO) OPERATIONAL TESTING OF ALL DEVICES AND EQUIPMENT. EQUIPMENT SUPPLIERS SHALL PROVIDE FACTORY TRAINED/FIELD PERSONNEL FOR FINAL CHECK-OUT, START-UP AND TESTING. PRIOR TO SUCH FINAL TESTING ALL PIPING SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH INDUSTRY STANDARDS.

2. WHEN ALL THE WORK AS SHOWN ON THE DRAWINGS AND INCLUDED IN THE SPECIFICATIONS HAS BEEN COMPLETED AND THE EQUIPMENT HAS BEEN INSTALLED, TESTED, PLACED INTO OPERATION, AND SUBSEQUENTLY HAS SATISFACTORILY OPERATED FOR 45 DAYS, A THOROUGH INSPECTION OF THE EQUIPMENT WILL BE MADE BY THE OWNER IN THE COMPANY OF THE CONTRACTOR, AND IF THE WORK IS FOUND TO COMPLY WITH THE DRAWINGS AND SPECIFICATIONS, THE WORK WILL BE FORMALLY ACCEPTED AND THE CONTRACTOR SO NOTIFIED AS TO THE FINAL ACCEPTANCE OF THE WORK BY THE OWNER. NOTIFICATION OF FINAL ACCEPTANCE WILL BE IN WRITING.

3. SHOULD ANY WORK BE FOUND TO BE INADEQUATE, FAULTY, OR OTHERWISE NOT IN ACCORDANCE WITH THESE DRAWINGS AND SPECIFICATIONS, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CORRECT SUCH WORK AT HIS/HER OWN EXPENSE, PRIOR TO FINAL ACCEPTANCE.

4. THE PERIOD OF EQUIPMENT AND WORKMANSHIP GUARANTEES SHALL COMMENCE IMMEDIATELY AFTER FINAL ACCEPTANCE OF THE WORK. UPON BEING NOTIFIED OF THE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL SUPPLY TO THE OWNER, A CERTIFICATE OF GUARANTEE WHICH SHALL GUARANTEE ALL EQUIPMENT AND WORKMANSHIP UNDER THE CONTRACTOR'S SCOPE OF WORK FOR A PERIOD OF ONE YEAR.

5. UPON FINAL ACCEPTANCE THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS OF THE WORK TO THE OWNER'S REPRESENTATIVE, BOTH IN PRINT AND ELECTRONIC VERSIONS.

6. SEE THE CONTRACT DOCUMENTS FOR ADDITIONAL DETAILS.

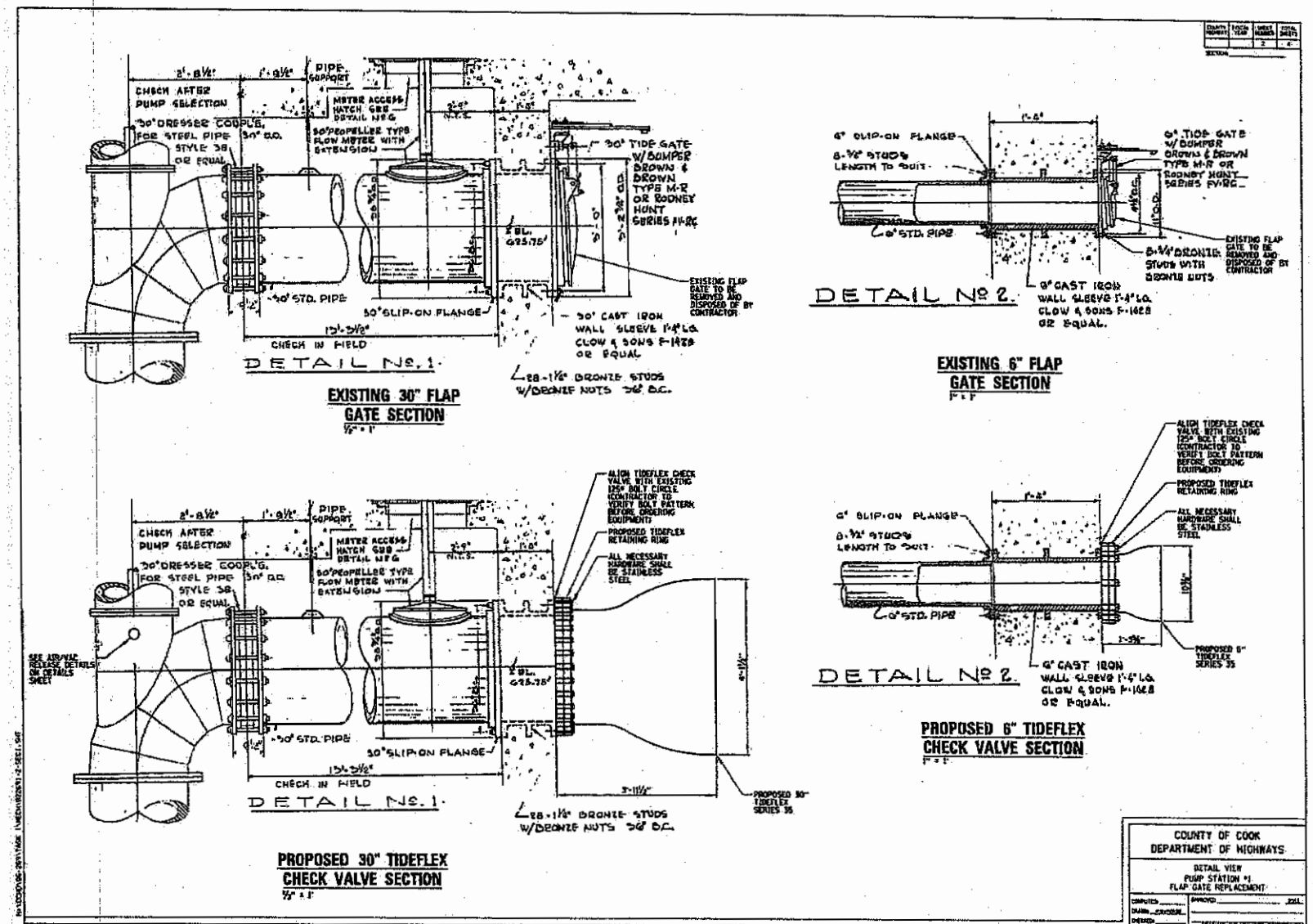
BILL OF MATERIALS

Item No.	Quantity	DESCRIPTION	MANUFACTURER	MODEL NO.
1	4	INSTALL 30" CHECK VALVE WITH 125 LB BOLT PATTERN	TIDEFLEX	SERIES 35
2	1	INSTALL 6" CHECK VALVE WITH 125 LB BOLT PATTERN	TIDEFLEX	SERIES 35
3	4	INSTALL 6" AIR/VAC RELEASE VALVE AND PIPING	APCO	153.1
4	1	INSTALL 2" AIR/VAC RELEASE VALVE AND PIPING	APCO	144.2
5	4	INSTALL 30" X 6" OUTLET/TAPPING SADDLE	AMERICAN DIP	N/A
6	1	INSTALL 6" X 2" SERVICE SADDLE	MUELLER	BR180684200
7	4	CORE DRILL THRU 12" THICK REINFORCED CONCRETE WALL WITH 12" CORE HOLE		
8	4	INSTALL 12" LINK SEAL FOR 6" PIPE PENETRATION	LINK SEAL	LS-500
9	4	TAP 30" DIA. PIPE FOR 6" HOLE		
10	1	TAP 6" DIA. PIPE FOR 2" HOLE		
11	1	MISCELLANEOUS EXTERIOR DUCTILE IRON PIPING		
12	1	EARTH EXCAVATION REMOVAL & REINSTALLATION		
13	1	TRENCH BACKFILL		
14	1	SEED & 4" TOP SOIL		
15	1	EROSION CONTROL BLANKET		
16	4	REMOVE EXISTING 30" FLAP GATES		
17	1	REMOVE EXISTING 6" FLAP GATES		

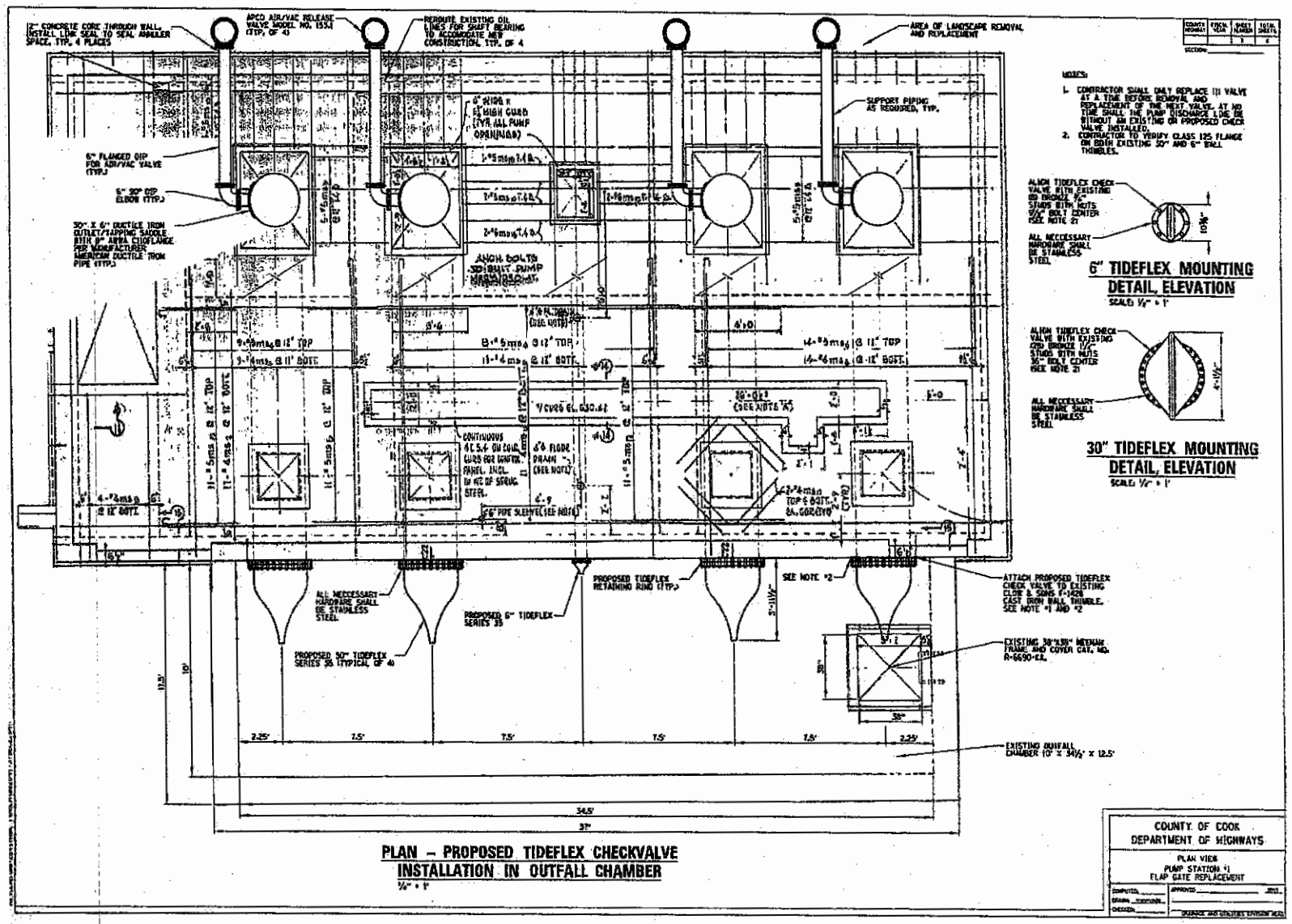
COUNTY OF COOK
DEPARTMENT OF HIGHWAYS

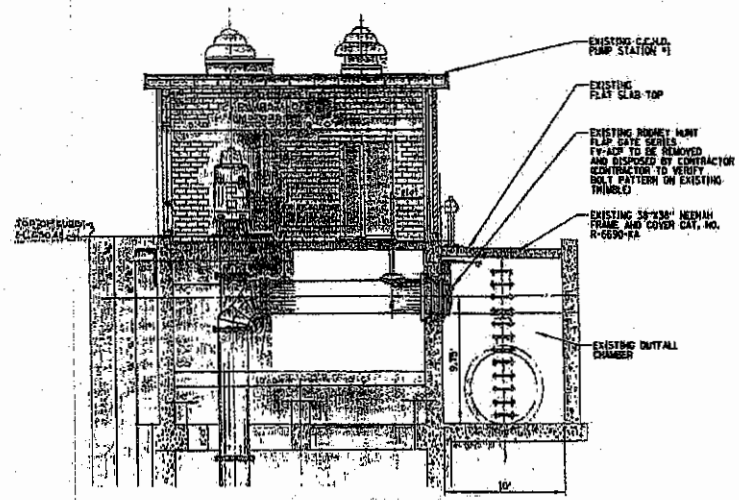
GENERAL NOTES AND BILL OF MATERIALS
PUMP STATION #1
FLAP GATE REPLACEMENT

COMPUTED _____ APPROVED _____ 201_
DRAWN _____ REVISED _____
CHECKED _____ DRAINAGE AND UTILITIES DIVISION HEAD

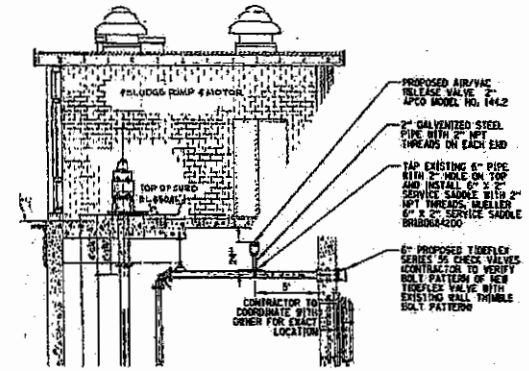


CHECK AFTER PUMP SELECTION
30" DRESSER COUPLE, FOR STEEL PIPE 30" O.D. STYLE 38 OR EQUAL
PIPE SUPPORT
METER ACCESS HATCH SEE DETAIL NO 6
30" PROPELLER TYPE FLOW METER WITH EXTENSION
30" TIDE GATE W/ BUMPER BROWN & BROWN TYPE M-R OR RODNEY HUNT SERIES FV-RC
EXISTING FLAP GATE TO BE REMOVED AND DISPOSED OF BY CONTRACTOR
30" STD. PIPE
30" SLIP-ON FLANGE
30" CAST IRON WALL SLEEVE 1'-4" LG. CLOW & SONS F-1428 OR EQUAL
CHECK IN FIELD
DETAIL No. 1
28-1½" BRONZE STUDS W/BRONZE NUTS 36" B.C.
EXISTING 30" FLAP GATE SECTION
½" = 1'
6" SLIP-ON FLANGE
8-¾" STUDS LENGTH TO SUIT
6" TIDE GATE W/ BUMPER BROWN & BROWN TYPE M-R OR RODNEY HUNT SERIES FV-RC
6" STD. PIPE
8-¾" BRONZE STUDS WITH BRONZE NUTS
EXISTING FLAP GATE TO BE REMOVED AND DISPOSED OF BY CONTRACTOR
6" CAST IRON WALL SLEEVE 1'-4" LG. CLOW & SONS F-1428 OR EQUAL.
DETAIL No 2.
EXISTING 6" FLAP GATE SECTION
1" = 1'
ALIGN TIDEFLEX CHECK VALVE WITH EXISTING 125# BOLT CIRCLE (CONTRACTOR TO VERIFY BOLT PATTERN BEFORE ORDERING EQUIPMENT)
PROPOSED TIDEFLEX RETAINING RING
ALL NECESSARY HARDWARE SHALL BE STAINLESS STEEL
SEE AIR/VAC RELEASE DETAILS ON DETAILS SHEET
PROPOSED 30" TIDEFLEX SERIES 35
PROPOSED 30" TIDEFLEX CHECK VALVE SECTION
½" = 1'
6" SLIP-ON FLANGE
8-¾" STUDS LENGTH TO SUIT
6" STD. PIPE
6" CAST IRON WALL SLEEVE 1'-4" LG. CLOW & SONS F-1428 OR EQUAL.
PROPOSED 6" TIDEFLEX SERIES 35
PROPOSED 6" TIDEFLEX CHECK VALVE SECTION
1" = 1'
COUNTY OF COOK
DEPARTMENT OF HIGHWAYS
DETAIL VIEW
PUMP STATION #1
FLAP GATE REPLACEMENT

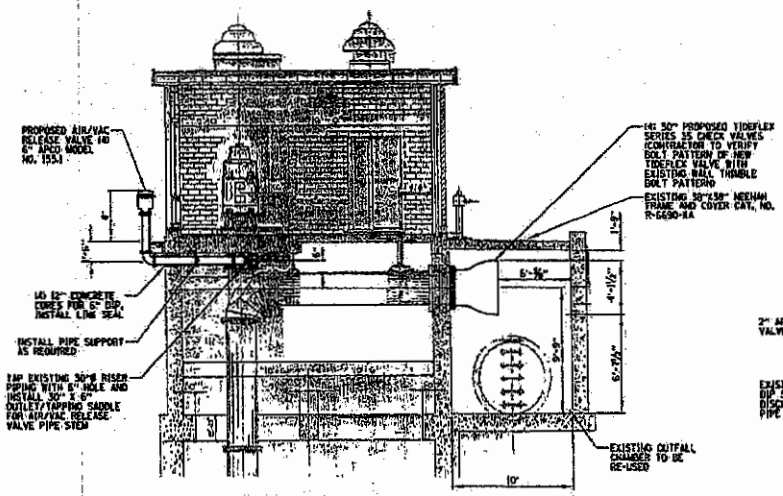

12" CONCRETE CORE THROUGH WALL, INSTALL LINK SEAL TO SEAL ANNULER SPACE, TYP. 4 PLACES
APCO AIR/VAC RELEASE VALVE MODEL NO. 155A (TYP. OF 4)
REROUTE EXISTING OIL LINES FOR SHAFT BEARING TO ACCOMODATE NEW CONSTRUCTION, TYP. OF 4
AREA OF LANDSCAPE REMOVAL AND REPLACEMENT
SUPPORT PIPING AS REQUIRED, TYP.
6" FLANGED DIP FOR AIR/VAC VALVE (TYP.)
6" 90° DIP ELBOW (TYP.)
30" X 6" DUCTILE IRON OUTLET/TAPPING SADDLE WITH 8" ARMA CLOSFLANGE PER MANUFACTURER AMERICAN DUCTILE IRON PIPE (TYP.)
ANCH. BOLTS 30" BUTT. PUMP MAKA 250-HT
CONTINUOUS 4'C.S.C. ON COND. CURB FOR WATER PANEL, INCL. IN WC OF STRUC. STEEL
6" FLOOR DRAIN (SEE NOTE)
6" PIPE SLEEVE (SEE NOTE)
PROPOSED TIDEFLEX RETAINING RING (TYP.)
SEE NOTE #2
ALL NECESSARY HARDWARE SHALL BE STAINLESS STEEL
PROPOSED 6" TIDEFLEX SERIES 35
PROPOSED 30" TIDEFLEX SERIES 35 (TYPICAL OF 4)
ATTACH PROPOSED TIDEFLEX CHECK VALVE TO EXISTING CLOW & SONS F-1426 CAST IRON BALL THIMBLE. SEE NOTE #1 AND #2
EXISTING 38"X38" NEENAH FRAME AND COVER CAT. NO. R-6690-EX.
EXISTING OUTFALL CHAMBER 10' X 34½' X 12.5'
34.5'
37'
2.25'
7.5'
7.5'
7.5'
7.5'
2.25'
NOTES:
1. CONTRACTOR SHALL ONLY REPLACE 1 VALVE AT A TIME BEFORE REMOVAL AND REPLACEMENT OF THE NEXT VALVE. AT NO TIME SHALL THE PUMP DISCHARGE LINE BE WITHOUT AN EXISTING OR PROPOSED CHECK VALVE INSTALLED.
2. CONTRACTOR TO VERIFY CLASS 125 FLANGE ON BOTH EXISTING 30" AND 6" BALL THIMBLES.
ALIGN TIDEFLEX CHECK VALVE WITH EXISTING 6" BRONZE ½" STUDS WITH NUTS 9½" BOLT CENTER PER NOTE 2
ALL NECESSARY HARDWARE SHALL BE STAINLESS STEEL
6" TIDEFLEX MOUNTING DETAIL, ELEVATION
SCALE: ½" = 1'
ALIGN TIDEFLEX CHECK VALVE WITH EXISTING 30" BRONZE ½" STUDS WITH NUTS 36" BOLT CENTER PER NOTE 2
ALL NECESSARY HARDWARE SHALL BE STAINLESS STEEL
30" TIDEFLEX MOUNTING DETAIL, ELEVATION
SCALE: ½" = 1'
PLAN – PROPOSED TIDEFLEX CHECKVALVE INSTALLATION IN OUTFALL CHAMBER
½" = 1'
COUNTY OF COOK
DEPARTMENT OF HIGHWAYS
PLAN VIEW
PUMP STATION #1
FLAP GATE REPLACEMENT



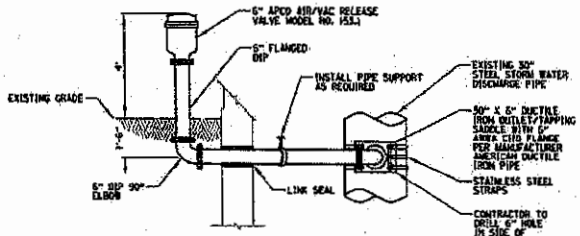
EXISTING FLAP GATE SECTION
1/4" = 1'



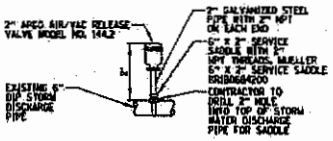
PROPOSED 6" TIDEFLEX CHECK VALVE SECTION
1/4" = 1'



PROPOSED 30" TIDEFLEX CHECK VALVE SECTION
1/4" = 1'



6" AIR-VAC RELEASE VALVE SECTION DETAIL
1/4" = 1'



2" AIR-VAC RELEASE VALVE SECTION DETAIL
1/4" = 1'

COUNTY OF COOK
DEPARTMENT OF HIGHWAYS

ELEVATION VIEW
PUMP STATION #1
FLAP GATE REPLACEMENT

COMPUTED ____ APPROVED ____ 20__
DRAWN ____ REVISED ____
CHECKED ____

PUMPING STATIONS - Referenced Specifications

Equipment specified herein is intended for application at Pump Station installations, either for use as part of routine repairs and replacement or as part of non-routine work including specified separately-paid work such as low flow pump installations. Although not repeated here, specifications for other items, such as rigid steel conduit, shall apply equally here.

1. Safety Switches:

Safety switches shall be heavy duty type. UL listed as suitable for use as service entrance equipment and shall be in conformance with NEMA Standard KSI-1983 for type HD and with Federal Specification W-S-865c for heavy duty switches. Switches used as service entrance equipment shall have a factory-installed solid neutral and other switches shall have a factory-installed grounding kit unless otherwise indicated.

The switches shall have a quick-make, quick-break mechanism, a full cover interlock to prevent opening the cover with the switch in the closed position and a position-indicating operating handle. The operating handle shall be well insulated from the current carrying parts of the switch.

Unless otherwise indicated, switches shall be rated 600 volts, and when used with UL listed Class R fuses, shall have a UL listed short circuit withstand rating of 200,000 RMS symmetrical amperes.

Unless otherwise indicated, safety switches shall be un-fused. Where fused switches are indicated, they shall be provided complete with US Class K-5 current limiting fuses.

Unless otherwise indicated, safety switches installed below grade or exposed to the weather shall have NEMA 4 stainless steel enclosures. Safety switches installed indoors above grade shall have NEMA 12 enclosures. Safety switches in explosion-proof hazardous locations shall be in enclosures suitable for the location.

2. Transformers:

Unless otherwise indicated, transformers shall be general purpose dry type, 2-winding of the capacities and voltage indicated.

Transformers 15 KVA and below shall be indoor/outdoor type and those above 15 KVA shall be indoor type unless otherwise indicated.

Unless otherwise indicated, transformers 3 KVA and above shall have not less than four 1% taps in the high voltage winding, two above and two below rated primary volts.

Transformers shall be UL listed and shall meet all applicable NEMA, ANSI, UL, and IEEE Standards.

Unless otherwise indicated, transformers shall have 220 degrees C Class insulation but shall be designed for a maximum temperature rise of 115 degrees C, over an ambient temperature of 41 degrees C.

3. Manual Motor Starter Switches:

Manual motor starter switches shall be complete with melting alloy type thermal overload protection which shall be trip-free and resetable. The exact size of the overload element shall be coordinated for the specific respective motor.

The switches shall be rated not less than one horsepower at 115 and 230 volts single phase. The switches shall be single pole unless otherwise indicated.

Where indicated, the switches shall be equipped with a pilot light and/or a hand-off-automatic selector switch.

Unless otherwise indicated, the manual motor starter switches shall be equipped with NEMA 4 cast enclosure. Switches which are flush mounted shall be mounted with the flush box and shall have a suitable flush-mount plate.

4. Circuit Breakers:

This specification shall apply to all circuit breakers furnished under this Division which are not integral to panelboards or motor control center equipment.

Circuit breakers shall be UL listed, molded case, thermal-magnetic, manually operated circuit breakers of the trip ratings shown or indicated.

Unless otherwise indicated, circuit breakers shall be 3-pole.

Unless otherwise indicated, circuit breakers shall be rated for-use on 480 volt circuits.

Multi-pole circuit breakers shall have a common trip and single operating handles. Handles shall be trip free. Circuit breakers in 250 ampere frames and above shall have an adjustable magnetic trip setting.

The circuit breakers shall indicate "ON", "OFF" and "TRIPPED" conditions.

Unless otherwise indicated, circuit breakers shall have a UL listed interrupting rating of not less than 25,000 RMS symmetrical amperes at 480 volts.

Unless otherwise indicated, circuit breakers installed below grade or exposed to the weather shall have NEMA 4 stainless steel enclosures and circuit breakers installed indoors above grade shall have NEMA 12 enclosures. All circuit breakers shall have external position-indicating operating lever handles with padlock provisions.

Where indicated or where required for indicated functions, circuit breakers shall be equipped with accessories such as shunt trips, auxiliary switches, and under voltage release.

5. Motor Starters:

This specification shall apply to all motor starters which are provided under this Division.

Unless otherwise indicated, motor starters shall be of the combination type with integral motor circuit short circuit protection mounted in a common enclosure with the starter and control components for control of circuit as indicated. Unless otherwise indicated, motor circuit short circuit protection shall be motor circuit protectors. Motor circuit protectors shall be manually operated and shall have a magnetic trip level adjustment. Trip ratings shown on the Drawings are approximate and the trip rating provided shall be as recommended by the device manufacturer for the characteristics of each respective motor. The Contractor shall coordinate device selection with motors provided under other Divisions.

Motor starters shall not be smaller than NEMA Size 1.

As a minimum, each starter shall be equipped with two normally open (NO) auxiliary contacts in addition to a starter seal-in (holding) contact. Unused contacts shall be spare.

Unless otherwise indicated, control circuits shall operate at 120 volts derived from a control transformer integral to the combination starter. The control transformer shall have a fused secondary and shall be sized adequately for the starter and all connected control devices, but in no case shall the transformer be sized less than 50 volt-amperes over the capacity required to operate the starter.

6. Control Devices:

Control devices shall be provided as part of motor starters and also for control stations remote from motor starters and as otherwise indicated.

Unless otherwise specifically indicated, push buttons, selector switches, indicating lights and other control devices shall be of the heavy duty oil tight type.

Contact blocks for push buttons and selector switches shall have not less than one double pole double throw (DPDT) contact.

Indicating lights shall have built-in transformers, 6-volt miniature bayonet base incandescent lamps and lenses of the colors indicated. Unless otherwise indicated, indicating lights shall be push-to-test type.

Legend plates shall be provided on all oil tight control devices. Unless otherwise indicated, green indicating lights shall have "RUNNING" legend plates and legend plates for other indicating lights shall be as indicated or as selected by the Engineer.

Unless otherwise indicated, enclosures for control stations (control devices which are remote from motor starters or other equipment) which are located below grade or exposed to the weather shall be NEMA 4 stainless steel and enclosures for control stations located indoors above grade shall be NEMA 12.

7. Float Control System:

The float control System shall include floats, interconnecting integral cable of a length required and control logic for the functions indicated. Except as otherwise indicated, float control systems shall conform to the specifications elsewhere herein for float switch installation.

Floats shall consist of mechanically activated micro-switches sealed in durable ABS outer shell with integral chlorinated polyethylene (CPE) cable.

The system shall be intrinsically safe for installation in the wet well.

The system shall be complete with control logic to produce the contact control and alarm functions indicated or furnished by the Engineer.

Float control systems furnished as part of separately paid float pumps shall be equipped with 2 control points via individual floats.

The system shall be complete with all required mounting hardware and accessories.

The float system shall be complete with mounting arrangement with a stilling well of adequate size, or by other means approved by the Engineer, to forestall the attachment of large sections of ice to the floats during cold weather which could then disturb the system mounting. The mounting arrangement shall permit easy removal of the floats and easy realignment when replaced. Submit details for approval by the Engineer prior to installation.

8. Meters And Instruments:

Meters and instruments applied to mains or panels as a whole, such as ammeters and voltmeters shall be switchboard type, black on white, approximately 4.5 inches square with 1% accuracy zero adjustment and 250 degree scales. Where scale ranges are not indicated, scales shall be selected such that full scale is adequate for the range of readings possible and nominal expected readings will be at roughly half of full scale.

Ammeters for individual compartments shall be nominally 2.5 inches square or round, analog meters with accuracy of 2% or better, with scale ranges matched to the starter current. Damping shall be appropriate for current. Where indicated, ammeters shall be of the meter relay type with at least one adjustable set point. Meter cases shall be compatible with motor control center construction specified.

Meter and instrument transfer switches shall be instrument-grade, multi-position, control switches having pistol-grip handles. Voltmeter selector switches shall be 7-position. Ammeter selector switches shall be 4-position. All switches shall have an off position.

Elapsed time meters shall be approximately 2.5 inches square or round with suitable flush mounting flange, reading in hours and tenths of hours. The meters shall be non-reset type.

Potential transformers and current transformers for meters and instruments shall be fully compatible with associated instrument scales and accuracy. When no other indication is given, 3 potential transformers shall apply for voltage metering. A single phase current transformer may be used for individual starter compartment ammeters, with the output also suitable for a connection as a single input to the telemetry system.

Control relays shall be hermetically sealed, with convertible, high reliability contacts rates not less then 5 amperes resistive.

Synchronous motor driven, time delay relays shall have a nominal 4 inch square face, shall be "on-delay" or "off-delay" as indicated and shall be of the range indicated. They shall be suitable for flush panel mounting. Each relay shall plug into a permanently wired molded case assembly. Time shall be set by turning a knob with a pointer on the face of the relay. The relay shall have a cycle progress pointer which will advance clockwise from the setting back to zero during timing. The relays shall have instantaneous and delayed contacts as required for the functions indicated. Unless otherwise indicated, the relays shall be for 120-volt operation.

Solid state time delay relays shall be "on-delay" or "off-delay" as indicated or may be of the convertible operation type. The relays shall have the dial range indicated and shall be complete with a permanently wired plug-in base. Where indicated, they shall be suitable for flush panel mounting, and shall then be complete with cycle progress pointer. When not indicated as being for flush panel mounting, the relays shall be suitable for internal mounting and they shall then be equipped with retaining clips to keep them secure in their plug-in sockets. They shall have contacts, as required, for the functions indicated. Unless otherwise indicated, the relays shall be for 120-volt operation.

9. Wiring Identification:

All wiring shall be identified by means of color coding and wire markers as specified herein. Circuit identification shall include all color coding requirements of the NEC, with particular attention directed to Article 210-5.

All wiring shall be tagged with self-sticking wire markers or other markers approved by the Engineer. The tagging shall be applied at each termination and splice. The tagging shall also be applied at other locations, where indicated on the Drawings. Designations shall include the full circuit and wire designation except for terminations at a panel for which the panel portion of the circuit designation may be omitted. Markers shall be permanent, of a size recommended by the manufacturer for the respective wire size and shall be applied as recommended by the manufacturer.

Unless specifically approved by the Engineer, color coding of neutral and ground wires shall be by means of colored insulation, except where bare ground wires are indicated.

Branch circuit wiring smaller than No. 6, from panelboards, for lighting, receptacles and similar loads shall be color coded by means of colored wire insulation. Colors shall be as selected by the Contractor but a sufficient number of colors shall be used such that wiring in common enclosures is clearly differentiated and color combinations of wiring runs are generally not repeated. Care shall be taken in the phasing of combined-neutral circuit runs. Switched legs shall be differentiated from un-switched legs of a circuit.

Control circuit wiring shall be color coded by means of colored wire insulation as follows:

"line":	black
neutral:	white
ground:	green
others:	red, or as otherwise indicated on the drawings.

Except as otherwise specified herein, wire color coding may be by means of colored insulation or colored tape, applied at each termination, splice and pull box.

10. Rigid Steel Conduit:

Rigid steel conduit shall be manufactured to conform to Federal Specification WWC-581, NEC Article 344, ANSI Specification 680.1 and UL labeled.

All surfaces, including factory-made threads shall be protected from corrosion by hot-dip or electro-galvanizing after threading. Factory threads shall be protected by plastic end caps.

11. Flexible Metal Conduit:

Flexible metal conduit shall be liquid-tight flexible metal conduit as defined by NEC Article 348 and shall be UL listed for wet location use.

Flexible metal conduit shall have nylon insulated throats.

Sizes through 1-1/4 inch shall have a built-in copper grounding conductor, UL listed as such.

12. Rigid Nonmetallic Conduit:

Rigid nonmetallic conduit shall be manufactured to conform to Federal Specification WC-1094A, NEMA specification TC-2 and NEC Article 352 and shall be UL listed for exposed, encased and underground applications.

The conduit shall be "Schedule 40" with minimum wall thickness as follows:

Nominal Diameter		Minimum Wall	
mm	Inches	mm	Inches
25.4	1	3.38	.133
31.8	1-1/4	3.56	.140
38.1	1.5	3.68	.145
50.8	2	3.91	.154
63.5	2.5	5.16	.203
76.2	3	5.49	.216
88.9	3.5	5.74	.226
101.6	4	6.02	.237
127.0	5	6.55	.258

13. Conduit Fittings:

Conduit couplings, elbows and nipples shall conform to the fittings specifications corresponding to their respective conduit specifications.

Locknuts, bushings, reducers, conduit plugs and similar fittings shall be galvanized or cadmium plated and shall conform to Federal Specification W-F-408.

Conduit bodies, such as used for pulling fittings or for avoiding sharp bends shall be hot dip galvanized and shall be complete with covers having self-retaining screws. Unless otherwise indicated, conduit bodies shall be cast iron alloy or malleable iron with gaskets and matching cast metal or malleable iron covers.

Insulated bushings shall be malleable iron or steel complete with plastic inserts or shall be high impact resistance plastic. They shall be UL listed with a rating not less than 150 degrees C, and they shall be equipped with ground lugs where required.

Conduit hubs which are not integral to a box or fitting shall be malleable iron or stainless steel and shall have nylon insulated throats, neoprene o-rings, and shall be positively grounded and watertight.

14. Pull Boxes:

Boxes shall be cast boxes or sheet steel boxes as indicated or specified. Each box shall be complete with a cover of the same type and material as the box except that flush-mounted sheet steel boxes for switches and receptacles shall have Type 302 satin finish stainless steel plates. Boxes shall be hot-dip galvanized. Sizes of boxes shall not be less than shown on the Drawings, and shall otherwise conform to NEC requirements as a minimum except that boxes shall not be less than 4-inches square by 2 inches deep.

15. Cast Boxes:

Cast metal boxes shall be gray iron alloy free from defects such as voids and shrinkage cracks, complete with covers having neoprene gaskets. Cast aluminum boxes shall not be used.

16. Raceway Installation:

Except where otherwise indicated or specified, raceways shall be rigid steel conduit.

No conduit smaller than 3/4 inch diameter trade size shall be used, unless specifically indicated. Wherever no conduit size is shown on the Drawings, the conduit size shall be taken to be 3/4 inch diameter.

Conduit runs shall have no more than 270 degrees of bends (the equivalent of three 90 degree bends) between pull points. Bends may be either factory-made bends or field bends using suitable bending apparatus.

Wherever possible, conduits shall be installed with a slight pitch to drain to the nearest box or fitting.

Threaded raceway joints shall be made with a conductive compound applied to the male threads. Threads shall be made to avoid butting and to avoid exposed threads. In no case will running threads be allowed.

Conduit reducers shall be provided as required for conduit terminations at equipment.

Myer's hub or equivalent type as specified by the Engineer shall be used for all conduits terminating into the junction box.

17. Flexible Conduit:

Unless otherwise indicated all flexible conduit shall be liquid-tight flexible metal conduit as specified herein.

Flexible conduit shall be used for raceway terminations where vibration will be present, such as at motors, limit switches, electric damper motors, solenoid valves and the like and the length of these flexible conduit terminations shall not exceed 3 feet.

All fittings used with flexible conduit shall be suitable for the conduit in conformance with the conduit manufacturer's requirements.

Flexible conduits larger than 1-1/4 inch trade size shall be installed complete with suitable terminating fittings at each end.

18. Wire And Cable:

The terms wire and cable as used herein and in the Drawings shall be interchangeable and shall refer to electric wire and cable conductors in conformance with the NEC.

Unless otherwise indicated, all wire and cable shall be insulated conductors as defined by the NEC.

Wire and cable shall be UL listed, new, and delivered to the site in full reels or boxes. The reels or boxes shall have tags or imprint showing the UL listing.

No wire size smaller than No. 12 shall be used unless specifically indicated.

19. Conductors:

Unless otherwise specifically indicated all wire and cable shall have copper conductors conforming to ASTM B-3 or ASTM B-8 with Class B stranding.

Conductors which are No. 8 and larger shall be stranded. Conductors smaller than No. 8 may be solid or stranded.

Conductors sized No. 8 and larger shall be coated in accordance with ASTM B-33 or B-189.

20. Insulation:

Wire and cable insulation shall be suitable for the conditions of the installation and the voltage of the respective system and, unless otherwise specifically specified, all wire and cable for system operating at 480 volts or less shall be insulated for 600 volts AC and shall be rated at not less than 90 degrees C dry and 75 degrees wet.

All 600-volt wire and cable sized No. 8 and larger shall be UL listed as Type USE and RHH and RHW, VW-1, with insulation of heat and moisture ethylene-propylene rubber (EPR) resistant compound.

All 600-volt wire and cable smaller than No. 8 shall be UL Listed as Type THW or THWN, with insulation of heat and moisture resistant polyvinyl chloride (PVC) thermoplastic and a nylon jacket or Type XHHW with insulation of cross-linked polyethylene compound, except that all such writing on the project shall be of the same type.

21. Wire And Cable Installation:

Wires and cables shall be carefully installed to avoid damage to insulation and cable jackets.

Wire lubricant shall be used when pulling wires into conduits. The lubricant shall be non-injurious to conduits, conductors, insulations or jackets and the lubricant shall be UL listed. Documentation shall be submitted to confirm suitability of the lubricant for the cables used on the project. Each run of cable shall have sufficient slack. Where a number of wires are trained through a box, manhole or handhole, they shall be grouped by circuit where applicable and bundled using appropriate cable ties and supported to minimize pressure or strain on cable insulation. Wire and cable shall not be bent to a radius less than the manufacturer's recommended bending radius, either in permanent placement or during installation. Cable pulling apparatus shall have no sharp edges or protrusions which could damage cables or raceways.

22. Piping And Appurtenances:

The work specified herein includes furnishing and installing all piping and accessories required for a complete and satisfactorily working installation as shown on the drawings and as specified herein.

All piping shall be generally arranged and aligned in accordance with the proposed drawings prepared by the Contractor and as specified. Where special conditions are encountered in the field, the arrangement and alignment of piping shall be as directed by the Engineer.

Piping shall be installed as directly as possible between connecting points insofar as the work of other trades permit. Where interference occurs with another trade whose work is more difficult to reroute, the Contractor shall revise the routing as required to avoid subject interferences. Piping shall be carefully installed to provide for proper alignment, slope and expansion.

To allow for expansion and contraction, pipe shall be guided and supported in such manner that pipe lines shall not creep, sag or buckle. Anchors and supports shall be provided wherever necessary to prevent any misalignment of piping. Pipe support shall not be limited to support indicated on the drawings.

For underground piping, where changes in direction occur and wherever else required, piping shall be anchored to prevent blowouts or creep from either exterior or interior stresses at pipe joints. Allowance shall be made whenever necessary for any future settlement of pipe lines to insure the required pitch and avoid pocketing.

Small tubing to gauges, controls, or other equipment, installed on any apparatus shall not be coiled nor excessive in length but shall be installed neatly, carefully, bent at all changes in direction, secured in place and properly fastened to equipment at intervals to prevent sagging.

Prior to the start of any piping installation work, the Contractor shall prepare, and submit for approval by the Engineer, detailed piping installation drawings. These shall be prepared on the basis of actual equipment being furnished on actual dimensions of walls openings and other significant elements.

23. Steel Pipe:

Steel pipe shall be Schedule 40, black or galvanized as indicated on the Drawings or as specified elsewhere in the specifications. Steel pipe shall be subject to the requirements of the applicable portions of the latest editions of the following standards:

A. A53 Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

B. ASTM A120 Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated (Galvanized) Welded and Seamless for Ordinary Uses.

C. A120 Specification for pipe, steel, black and hot-dipped zinc-coated (galvanized) welded or seamless for ordinary uses.

Steel pipe shall have flanged ends when indicated on the Drawings. Flanges for steel pipe shall be of weld neck or slip-on type. Flanges of the slip-on type shall be installed with the pipe set back from the face of the flange and the flange welded to the pipe in both front and back.

Unless otherwise indicated, flanged steel pipe shall be made up with cast iron fittings.

24. Ductile Iron Fittings:

Ductile iron fittings shall be provided as indicated on the Drawings and specified herein. Ductile iron fittings shall be subject to the requirements of the applicable portions of the latest editions of the following standard: A21.10 Ductile Iron Fittings 3-in. through 4 feet for Water and Other Liquids.

25. Flanged Connections:

Flanged connections shall be made as indicated on the proposed Drawings prepared by the Contractors and as specified herein. All flanges shall be drilled in conformance with the 125/150 ANSI Standard template.

Class 150 pound steel flanges shall be smoothed finished (flat faced) for connection to dissimilar metals such as cast iron.

Flanged connections shall be assembled with full face rubber gaskets using ASTM A307, Grade B hexhead machine bolts.

26. Wall Castings:

Cast iron wall castings shall be furnished and installed for all storm water piping passing through walls, as shown on the drawings.

Wall castings shall be flanged at both ends with flanges to fit flush to surface. Flanged ends shall be tapped for studs with drilling to conform to the American Cast Iron Flange Standard, Classes 125(B16.1).

All wall castings shall be furnished and installed with centrally located intermediate wall collars to provide watertight construction by increasing resistance to seepage. Wall castings to be set in the form with the bolt holes in the flanges straddling the center lines both horizontally and vertically.

27. Wall Sleeves:

Wall sleeves shall be cast iron and schedule 40 galvanized steel pipe as called for on the drawings. Sleeves shall be sealed with modular type wall seals.

28. Wall Opening:

The Contractor shall determine the required inside diameter of each individual wall opening or sleeve before opening shall be sized as recommended by the manufacturer to fit the pipe and Link-Seal to assure water-tight joint.

29. Sleeve Couplings:

Sleeve type couplings for steel pipe shall be dresser type with center stop removed or approved equal.

30. Flap Valves (Flap Gates)

The Flap Valve, size as indicated in the pay item, shall be flange-framed with a resilient seat. It shall be specifically designed for pump discharge service.

The body shall be cast-iron ASTM A126-B. The flange shall be faced and drilled 125 lbs, standard for all pipe flange mounting.

A resilient seal, neoprene on Buma-N shall be bonded in a grove machined in the body to provide a wide contact surface for the seat machined in the cover.

The cover, or flap, shall be cast-iron, ASTM A-126-B with spherically dished design to withstand maximum operating loads. Severe pump discharge may require high-test cast-iron, ASTM A126-C, or ductile iron, ASTM A536 for the cover as recommended by the manufacturer.

The hinge arms shall be high-tensile bronze ASTM B584-CA865. The hinge pins, designed in double shear, shall be silicon bronze, ASTM 898-CA655 or Type 304 stainless steel. Each hinge arm shall have two pivot points, and adjustable lower pivot with limited rotation and a threaded upper hinge post to adjust flap valve sensitivity. A lubrication fitting shall be supplied for each pivot.

An anti-locking bar, between the hinge arms, shall be provided to prevent excessive rotation about the lower hinge pin.

A steel leaf spring attached to the body and extended over the cover shall be provided to safely limit the travel of the cover during "pump discharge" operation. A rubber pad shall be provided at the spring to cover the contact point.

Item EX-1 REGULAR WORK SPECIAL

Under this pay item regular workthat is deemed necessary by the Engineer for the improvement, correction, or addition to the Traffic Signal Installations and Systems, Lighting Systems, Navigation Lighting Systems, Cathodic Protection Systems, Pumping Stations, Maintenance Facilities Electrical Systems or their appurtenances not covered by items AX, AY, AZ, BU, BW, BX, BY, BZ, CX, CY, CZ, DX, FX and GX shall be paid for in accordance with Article 109.04 of the State Standard Specifications and billed by special invoice and shall not be considered as regular work under Article III Item 10 of these Special Provisions.

Each billing shall be broken down as to labor cost, material cost, and equipment cost, not counting transportation for workers and equipment used in routine maintenance as set forth in Article 109.04. The total cost of regular work special during the effective period of this Contract shall not exceed the **UNIT** price as shown in the Schedule of Prices.

All work to be performed under this item shall be issued an authorization number which number is to be indicated on the billing.

Item EX-2 LABOR TO UPGRADE ALL ELECTRICAL SYSTEMS EXCEPT THOSE IN THE MAINTENANCE FACILITIES

Under this item for a unit price per **HOUR** as shown in the schedule of prices, and when directed by the Engineer in writing following a determination by him of the need for the Regular Work Special, the Contractor shall provide labor to upgrade all electrical systems except those paid for under Item FX-1. This item shall include all benefits and transportation for the person.

Item F-1 MAINTENANCE FACILITIES ELECTRICAL SYSTEMS ROUTINE MAINTENANCE

Under this item, the Contractor shall service and maintain the existing maintenance facilities electrical systems, including alarm systems, video monitoring and security systems and any new electrical systems that may be installed or taken over for maintenance by the Department during the period of this Contract.

A. Patrol and inspect the maintenance facility electrical systems and check each system for proper operation once every two (2) weeks. The patrol person shall report to the District Engineer or his designated representative upon arrival to receive a list of items that are in a state of disrepair. The Contractor, upon notification by the District Engineer or other qualified individual, shall dispatch

personnel to the location immediately, and effect emergency repairs or perform such operations that will restore the maintenance facility to normal operating condition.

B. Keep electrical systems in proper working condition and equipment cabinets clean. Branch circuit breakers and their associated wire and conduit will be replaced by the Contractor as part of routine maintenance and all other breakers, motor starters and contactors shall be considered as regular work and shall be in accordance with Article III upon the authorization of the Engineer.

C. Replace any defective wall switches, receptacles, and lighting outages, including ballasts, damaged by any cause whatsoever. Any cable, wire or conduit that is damaged or defective will be repaired by the Contractor and shall be considered as routine maintenance.

D. Check the emergency electric generator, its prime mover, control panel and transfer switch for proper operation once every two weeks. All oil reservoirs and battery acid levels shall be checked and filled within the levels recommended by the manufacturer. All filters and oils shall be changed in accordance with the manufacturer's specifications or a minimum of two (2) times a year, whichever is shorter. The Contractor shall also exercise the emergency electric generator for the length of time (minimum of 30 minutes) and at the interval recommended by the manufacturer. This exercise shall be done under load at least once each month. Any repairs needed to the emergency electric generator, its prime mover, control panel and transfer switch shall be considered as regular work and shall be in accordance with Article III upon the authorization of the Engineer.

E. At the beginning of the Contract, the Contractor shall, under routine maintenance organize log books in each Maintenance Facility as described herein. Maintain Maintenance Facility electrical system log books as instructed by the Engineer and perform operations as stated. The log books shall not be revised or removed from the Maintenance Facility. Copies of all entries to the log books are to be faxed to the Department's downtown office after being entered.

F. Keep heating, ventilating, calcium chloride and other electrical equipment properly energized at all times. Repair of this equipment is to be done by others.

G. Report to the Engineer as soon as detected, all components including driving motors and control equipment, which are damaged or inoperative. Replace or repair all defective components regardless of cause. All work performed under this item shall be considered as regular work and shall be in accordance with Article III upon the authorization of the Engineer.

H. Rebuild completely, as selected by the Engineer, any part of the electrical systems during the term of this Contract. The work shall include refurbishment or replacement of all parts of the selected system and any necessary auxiliary equipment. All work associated with and including scheduling shall meet with the approval of the Engineer. All work performed under this item shall be considered as regular work and shall be in accordance with Article III upon authorization of the Engineer.

I. Report to the Engineer by the fastest means of communication:

I.-1. any work authorized or unauthorized being performed by others affecting the system,

I.-2. any other work in progress which may come to his attention and which may endanger or damage any installation of the system,

I.-3. any emergency temporary repairs which may cause the Contractor to make temporary major changes in the system.

J. Respond to all emergency calls by the Engineer within one (1) hour, and all calls by the Engineer to supervise additional installations by others, or to locate underground cables or any other components of the system to prevent damage by any proposed construction.

K. Obtain approval from the Engineer before beginning work on permanent repairs to the system or any parts thereof, and recommend to the Engineer any change.

L. Keep records of repairs and services to all systems or equipment and keep them available to the Engineer.

M. Once every month test each emergency light and emergency exit light for a minimum of 15 minutes or until the battery is totally discharged. The lamps, batteries and chargers are considered part of routine maintenance.

N. Once a year, in January, group relamp, wash all lenses and fixtures, for all incandescent and fluorescent lights in all the buildings of the Maintenance Facility as part of routine maintenance. All high intensity discharge lamps in the garages, storage areas, and exterior mounted lights (wallpacks) will be group relamped when authorized by the Engineer and shall be considered regular work. All exterior flood and area lighting located on top of the buildings, pole mounted, or located in the salt storage buildings will be paid for under Item B for Street and Roadway Lighting. Group relamping high intensity discharge lamps in garages, storage areas and exterior mounted lights will be paid for under Item B for street and roadway lighting.

All fluorescent and HID lamps must be taken to a certified processing facility meeting EPA Standards. A receipt shall be furnished to the County showing that the lamps have been disposed of properly. The lamps shall be taken to Fluorecycle, Inc. (815-363-4411) or to another EPA and County approved lamp recycling center.

O. The Contractor shall maintain all existing alarm systems, both fire and burglar, including any new ones, located in all Districts. Once a year, in January, all alarms in Districts 1, 2, 4, and 5 are to be tested and a report sent to the Engineer by January 31 of the current year. The alarms in District 3 shall be tested in December of the current year and to be coordinated with the Village of LaGrange Park Fire Department. All deficiencies found under this item shall be considered as regular work and shall be in accordance with Article III upon authorization of the Engineer.

P. All burglar alarm systems and fire alarm systems are to be monitored by the Contractor. This monitoring shall be done by the Contractor or by a third party source approved by the County. After a alarm is received a determination is to be made if the alarm is false or if the call should be forwarded to the appropriate police department. The Contractor will be liable for all fines caused by excess false alarms which cause the County to be fined by the Local Agency. Each Monday a

report is to be sent to the Engineer by fax of all alarms received and disposition of each alarm. The Contractor is to make all arrangements to have this work done before the start of the Contract.

Q. The Contractor shall make arrangements with the District Engineer of each District to have an operational test of the Calcium Chloride dispensing system in October before the first snowfall. The Contractor is to prepare a report of the test listing any deficiencies found and fax it to the Engineer and furnish a copy to the District Engineer so that repairs can be made. The Contractor is only responsible under routine maintenance to keep power provided up to the pump motor and control panel.

R. The Contractor shall inspect the service entrance and feeder panels at the Maintenance Districts, during mid-September to mid-October. The log sheet shall be completed and submitted to the Engineer. Tickets shall be created for any deficiencies found.

Inspection procedure is as follows:

A. Clean enclosure and control equipment by blowing out with low air pressure or vacuuming

B. Check and clean contacts, relays and timers and visually inspect for damage or out of adjustment parts. Remove all dust off of electrical devices and equipment.

C. Circuit breaker maintenance:

- Check connections
- Exercise breaker
- Check trip setting

D. Inspect wiring/conductors for overheating and discoloration

E. Check tightness of wire terminations and connections

F. Check for proper labeling, provide and install missing labels

G. Check wire tags/labels, provide and install missing tags or labels

H. Check fuse disconnects for proper operations, keep fuse clips clean and tight

I. Check fuses for proper size

J. Test equipment ground system

Item FX-1 LABOR TO UPGRADE ELECTRICAL SYSTEMS

Under this item for a unit price per **HOUR** as shown in the schedule of prices, and when directed by the Engineer in writing following a determination by him for the need of upgrading, the Contractor shall provide labor to upgrade electrical systems. All materials needed for the upgrade shall be paid for as regular work under Article III. This item shall include all benefits and transportation for the person.

Item FX-2 THERMO GRAPHIC INSPECTION

Description. This work shall consist of furnishing equipment, materials and labor for a thermo graphic inspection of electrical systems, including the main service entrance panel, and sub panels at the maintenance facility, as specified by the Engineer. The testing must be performed by a qualified company, with prior experience in such type of testing, and shall be approved by the Engineer. An inspection report, including thermo graphs of the equipment tested and deficiencies noted, shall be furnished.

Method of Measurement. Each inspection that is completed, and report submitted and approved by the Engineer, shall be counted as unit for payment.

Basis of Payment. This work shall be paid at the Contract unit price EACH, for THERMO GRAPHIC INSPECTION of the facility specified, which shall be payment in full for the work as described herein.

ITEM GX - GENERAL SPECIALTY ITEMS TO BE USED ON ALL TYPES OF REGULAR WORK:

Under this item, for unit price per installation as shown in the Schedule of Prices and when directed by the Engineer, shall furnish all materials, equipment, and labor to perform the work as specified. All materials of work not expressly specified but necessary for the proper completion in a neat, workmanlike manner shall be considered incidental and shall be included under the unit bid price and shall use the following Standards: **805001-01, 814001-02, 814006-02, 857001-01, 857006-01, 862001-01, 873001-02, 876001-02, 877001-05, 877002-02, 877006-04, 877011-05, 877012-02, 878001-09, 880001-01, 880006-01, 886001-01, 886006-01,** , County Traffic Signal Work Special Provisions, Standard Specifications for Road and Bridge Construction and IDOT District One STANDARD TRAFFIC SIGNAL DESIGN DETAILS or latest revision of each except as stated in each following pay items.

Item GX- 1: THRU GX-8: GALVANIZED STEEL UNDERGROUND CONDUIT OF THE SIZE AND TYPE AS SHOWN IN THE SCHEDULE OF PRICES

Item GX-9: THRU GX-14: P.V.C. UNDERGROUND CONDUIT IN TRENCH OF THE SIZE AS SHOWN IN THE SCHEDULE OF PRICES

Item GX-15: COILABLE NON-METALLIC CONDUIT The furnishing and installation of conduit and/or unit duct shall meet Section 810 of the Standard Specifications and the Cook County Special Provisions.

This work will be paid for at the contract unit price per **FOOT** which price shall be payment in full for furnishing and installing the conduit and/or unit duct and fittings complete.

Item GX-16: REMOVE ELECTRIC CABLE FROM CONDUIT

This item shall consist of removing electric cable from an existing conduit at a location as directed by the Engineer and shall meet Section 895 of the Standard Specifications.

This work will be paid for at the contract unit price per **FOOT** which price shall be payment in full for removing and disposing of the cable from conduit.

Item GX-17: SERVICE INSTALLATION, POLE MOUNTED

Item GX-18: SERVICE INSTALLATION, GROUND MOUNTED

Item GX-19: COMBINATION LIGHTING AND TRAFFIC SIGNAL SERVICE INSTALLATION, POLE MOUNTED

Item GX-20: RELOCATE SERVICE INSTALLATION

The installation of a service installation shall meet the requirements of Section 805 of the Standard Specifications and the Cook County Special Provisions.

This work will be paid for at the contract unit price **EACH** which price shall be payment in full for furnishing and installing the service installation complete. Any charges by the utility company to provide electrical service will be paid for in accordance with Article 109.05 of the Standard Specifications.

Item GX-21: HANDHOLE

Item GX-22: HEAVY DUTY HANDHOLE

Item GX-23: DOUBLE HANDHOLE

The installation of a handhole shall meet the requirements of Section 814 of the Standard Specifications and the Cook County Special Provisions.

This work will be paid for at the contract unit price **EACH**, which price shall be payment in full for all necessary excavating, backfilling, disposal of unsuitable materials, and furnishing all materials within the limits of the handhole.

Item GX-24: REBUILD EXISTING HANDHOLE

The furnishing and installation of conduit and/or coilable non-metallic conduit shall meet the Cook County Special Provisions of "Rebuild Existing Handhole, Heavy-Duty Handhole, Double Handhole" and "City Electric Manholes To Be Adjusted."

This work will be paid for at the contract unit price **EACH**, which price shall be payment in full for all labor, all materials, and equipment necessary to complete the work described above and as indicated in the Plans.

ITEM GX-25: REMOVE EXISTING CONCRETE FOUNDATION

The removal of an existing concrete foundation shall meet the requirements of Section 895 of the Standard Specifications.

The removal of a concrete foundation three (3) feet or less in depth below grade shall be removed completely and disposed of outside the right-of-way. A concrete foundation greater than three (3) feet in depth shall have the first three (3) feet below grade removed and disposed of outside the right-of-way.

The area where the foundation has been removed shall be backfilled and restored to meet the existing grade and terrain.

This work shall be paid for at the contract unit price **EACH**, which price shall include all labor material and equipment necessary to complete the work in place, as specified herein and as directed by the Engineer.

Item GX-26: REMOVE EXISTING HANDHOLE

The removal of an existing concrete handhole shall meet the requirements of Section 895 of the Standard Specifications.

The concrete handhole shall be removed completely and disposed of outside the right of way. The area where the handhole has been removed shall be backfilled and restored to meet the existing grade and terrain.

This work shall be paid for at the contract unit price **EACH**, which price shall include all labor, material and equipment necessary to complete the work in place, as specified herein and as directed by the Engineer.

Item GX-27: DRILL EXISTING HANDHOLE

This item shall conform to Section 879 of the Standard Specifications.

This work shall be paid for at the contract unit price **EACH**, which price shall include all labor, material and equipment necessary to complete the work in place, as specified herein and as directed by the Engineer.

Item GX-28: MEDIAN REMOVAL AND REPLACEMENT

This work consists of removing and replacing existing concrete median at locations shown on the plans or when directed by the Engineer, in accordance with the applicable requirements of Sections 440 of the Standard Specifications and the Cook County Special Provisions.

This work shall be paid for at the contract unit price per **SQUARE FOOT**, which price shall include all labor material and equipment necessary to complete the work in place, as specified herein and as directed by the Engineer.

Item GX-29: SIDEWALK REMOVAL AND REPLACEMENT

This work consists of removing and replacing existing concrete sidewalk at locations shown on the plans or when directed by the Engineer, in accordance with the applicable requirements of Sections 440 and 424 of the Standard Specifications and the Cook County Special Provisions. The replaced sidewalk shall be similar in design to that which is existing.

This work shall be paid for at the contract unit price per **SQUARE FOOT**, which price shall include all labor material and equipment necessary to complete the work in place, as specified herein and as directed by the Engineer.

IV CCDOTH MAINTENANCE LIST (As of April 1, 2013)

TYPE	DESCRIPTION
A-1	Traffic Signal Installation
A-2	Temporary Traffic Signal Installation
A-3	Flashing Beacon Installation – Overhead
A-4	Flashing Beacon Installation - Post Mounted
A-5	Solar Flashing Beacon Installation - Post Mounted
A-6	Rectangular Rapid Flashing Beacon
A-7	Speed Sign Installation
A-8	Advanced Railroad Warning System.
A-9	Closed Loop System Monitoring
B-1	LIGHTING UNIT, LESS THAN 38 FEET
B-2	LIGHTING UNIT, MORE THAN 38 FEET, LESS THAN 80 FEET
B-3	LIGHTING UNIT, 80 FEET OR MORE,
C-1	Navigation Lighting System on Structure Over Waterway
C-2	Bridge Catholic Protection System
D-1	Pump Stations
D-2	Pump Stations
D-3	Pump Stations
D-4	Pump Stations
D-5	Pump Stations
D-6	Pump Stations
D-7	Pump Stations
F-1	Maintenance Facility Electrical System
Under C	Under Construction

Note: Additional A items will be added in 2014 contract as listed in schedule of price.

Type	Street Name 1	Street Name 2
A-1	103rd Street	52nd Ave.-Laramie Ave.
A-1	103rd Street	76th Avenue/Terry Drive
A-1	103rd Street	Central Avenue
A-1	103rd Street	Lawler Avenue
A-1	103rd Street	Roberts Road
A-1	104th Avenue	131st Street
A-1	104th Avenue	179th Street
A-1	107th Street	Roberts Road
A-1	115th Street	Ridgeland Avenue
A-1	123rd Street	Kostner Avenue
A-1	127th Street	I-355 Ramp A+B(West Ramp)
A-1	127th Street	I-355 Ramp C+D(East Ramp)
A-1	127th Street	Timberline Drive
A-1	131st Street	Bell Road
A-1	131st Street	Carl Sanburg School
A-1	131st Street	Will Cook Road
A-1	131st Street	Wolf Road
A-1	138th Street	School Street
A-1	143rd Street	Ridgeland Avenue
A-1	151st Street	80th Avenue
A-1	151st Street	82nd Avenue
A-1	151st Street	Oak Park Avenue
A-1	153rd Street	100th Avenue/West Avenue
A-1	153rd Street	108th Avenue
A-1	167th Street	104th Avenue
A-1	167th Street	108th Avenue
A-1	167th Street	Central Avenue
A-1	167th Street	Head Avenue
A-1	167th Street	Kedzie Avenue
A-1	167th Street	Kilbourn Avenue
A-1	167th Street	Oak Forest Avenue

A-1	167th Street	Oak Park Avenue
A-1	167th Street	Will Cook Road
A-1	167th(170th) Street	Paxton Avenue
A-1	170th Street	Exchange Avenue
A-1	170th Street	The Landing Shopping Center Drive
A-1	171st Street	80th Avenue
A-1	171st Street	84th Avenue
A-1	171st Street	88th Avenue
A-1	171st Street	94th Avenue
A-1	171st Street	Ashland Avenue
A-1	171st Street	Center Street
A-1	171st Street	Victor Andrew H. S.(East of 94th Avenue)
A-1	175th Street	Kedzie Avenue
A-1	179th Street	108th Avenue
A-1	183rd Street	76th Avenue
A-1	26th Street	State Street
A-1	79th Street	County Line Road
A-1	80th Avenue	157th Street
A-1	80th Avenue	167th Street
A-1	80th Avenue	175th Street
A-1	80th Avenue	179th Street/Metra Entrance
A-1	80th Avenue	183rd Street
A-1	80th Avenue	Wheerler Drive
A-1	82nd Avenue	135th Street
A-1	82nd Avenue	143rd Street
A-1	84th Avenue	175th Street
A-1	87th Street	78th Avenue
A-1	87th Street	Central Avenue
A-1	87th Street	Kean Avenue
A-1	87th Street	Oak Park Avenue
A-1	87th Street	Oketo Avenue
A-1	87th Street	Ridgeland Ave/Narragansett Ave/State Road
A-1	87th Street	Roberts Road
A-1	88th Avenue	107th Street
A-1	94th Ave	179th Street

A-1	94th Ave	Boardwalk Lane
A-1	94th Avenue	167th Street
A-1	Arlington Heighs Road	Hintz Road
A-1	Arlington Heighs Road	Rand Jr HS(Sch Dist. 25)
A-1	Arlington Heights Road	Biesterfield Rd/ Kennedy Blvd
A-1	Arlington Heights Road	Cosman Road
A-1	Arlington Heights Road	Devon Avenue
A-1	Arlington Heights Road	Elk Grove Blvd
A-1	Arlington Heights Road	Lake Cook Road
A-1	Arlington Heights Road	Landmeier Road
A-1	Arlington Heights Road	Nichols Road/Bernard Dr
A-1	Arlington Heights Road	Oakton Street
A-1	Arlington Heights Road	University Drive
A-1	Ashland Avenue	175th Street
A-1	Ashland Avenue	Sauk Trail
A-1	Ashland Avenue/King Road	Steger Road
A-1	Bartlett Road	Bode Road
A-1	Bartlett Road	Schaumburg Road
A-1	Bartlett Road	Shoe Factory Road
A-1	Bartlett Road	Streamwood Blvd
A-1	Brainard Avenue	Plainfield Road
A-1	Buffalo Grove Rd/Windsor Dr.	Hintz Road
A-1	Buffalo Grove Road	Bernard Drive
A-1	Buffalo Grove Road	Lake Cook Road
A-1	Busse Road	Lincoln Street
A-1	Busse Road	Westbrook School Signals
A-1	Camp McDonald Road	Schoenbeck Road
A-1	Camp McDonald Road	Wheeling Road
A-1	Central Avenue	107th Street
A-1	Central Avenue	115th Street
A-1	Central Avenue	151st Street
A-1	Central Avenue	155th Street/James Drive
A-1	Central Avenue	83rd Street
A-1	Central Avenue	91st Street
A-1	Central Avenue	99th Street

A-1	Central Avenue	Albert Drive
A-1	Central Avenue	Midlothian Turnpike
A-1	Central Avenue	Southwest Highway
A-1	Central Road	Ela Road
A-1	Central Road	Fernandez Avenue
A-1	Central Road	Freeman Rd/Huntington Blvd
A-1	Central Road	New Wilke Road
A-1	Central Road	Northwest Community Hospital(W Fernandez)
A-1	Central Road	Roselle Road
A-1	Church Street	Lockwood Avenue
A-1	Cottage Grove Road	Glenwood Lansing Road
A-1	Cottage Grove Road	Joe Orr Road
A-1	County Line Road	Burr Ridge Parkway(S Frontage Rd)
A-1	County Line Road	Carriage Way Lane
A-1	County Line Road	German Church Road
A-1	County Line Road	Plainfield Road
A-1	Crawford Avenue	131st Street
A-1	Crawford Avenue	135th Street
A-1	Crawford Avenue	139th Street
A-1	Crawford Avenue	145th Street
A-1	Crawford Avenue	152th Street
A-1	Crawford Avenue	Howard Street
A-1	Crawford Avenue	Main Street
A-1	Crawford Avenue	Midlothian Turnpike
A-1	Crawford Avenue	Oakton Street
A-1	Crawford Avenue	Rexford Road
A-1	Dempster Street	Linneman Road
A-1	Dempster Street	Marshall Blvd
A-1	Dempster Street	Mt. Prospect Road
A-1	Devon Avenue	Lively Blvd
A-1	Devon Avenue	Mittel Blvd/Ridge Avenue
A-1	Devon Avenue	Nerge Road
A-1	Devon Avenue	Park Blvd/Pierce Road
A-1	Devon Avenue	Tonne Road
A-1	East Lake Avenue	Glenview Fire Station

A-1	East Lake Avenue	Harms Road
A-1	East Lake Avenue	Laramie Avenue
A-1	East Lake Avenue	Patriot-North And South Road(Telegraph)
A-1	East Lake Avenue	Pfingsten Road
A-1	East Lake Avenue	Scott Foresman/Tall Tree Road
A-1	East Lake Avenue	Shermer Road
A-1	East Lake Avenue	Sunset Ridge Road
A-1	East Lake Avenue	Wagner Road
A-1	East River Road	Tri-State Ramp B(N. of Golf Road)
A-1	Edens West Frontage Road	I-94 Off Ramp
A-1	Edens West Frontage Road	Tower Road
A-1	Euclid Avenue	Burning Bush Lane
A-1	Euclid Avenue	Chester Lane
A-1	Euclid Avenue	Harper College
A-1	Euclid Avenue	Plum Grove Road
A-1	Euclid Avenue	Quentin Road
A-1	Euclid Avenue	Rohlwing Road
A-1	Euclid Avenue	Roselle Road
A-1	Euclid Avenue	Salt Creek Lane
A-1	Euclid Avenue	Sycamore Lane
A-1	Euclid Avenue	Wheeling Road
A-1	Euclid Avenue	Wilke Road
A-1	Flossmoor Road	Kedzie Avenue
A-1	Glenwood Lansing Road	Stony Island Avenue
A-1	Glenwood Lansing Road	Wentworth Avenue
A-1	Greenwood Avenue	Church Street
A-1	Greenwood Avenue	Normal Avenue
A-1	Happ Road	New Trier Center
A-1	Harms Road	Glenview Road
A-1	Harms Road	Old Orchard Road
A-1	Hibbard Road	Glenview Road
A-1	Hintz Road	Chaddick Drive
A-1	Hintz Road	Schoenbeck Road
A-1	Hintz Road	Wheeling Road
A-1	Hintz Road	Wolf Road

A-1	Joe Orr Road	State Street
A-1	Joe Orr Road	Stony Island Ave
A-1	Kedzie Avenue	139th Street
A-1	Kedzie Avenue	155th Street
A-1	Kedzie Avenue	163rd Street
A-1	Kedzie Avenue	183rd Street
A-1	Kedzie Avenue	Country Aire Drive
A-1	Kedzie Avenue	Homewood-Flossmoor H S(Viking Dr)
A-1	Kedzie Avenue	Rexford Road(Claire Blvd)
A-1	Kedzie Avenue	South Surban Hospital(17800S)
A-1	Kedzie Avenue	Vollmer Road
A-1	Lake Avenue	Edens Plaza Entrance
A-1	Lake Avenue	Hunter Road-23rd Street
A-1	Lake Avenue	Illinois Road
A-1	Lake Avenue	Locust Road
A-1	Lake Avenue	Ridge Road
A-1	Lake Cook Road	Caribou Crossing/Discover Way
A-1	Lake Cook Road	Carlisle Ave/Pine Tree Road
A-1	Lake Cook Road	Commerce Clearing House
A-1	Lake Cook Road	Deer Park
A-1	Lake Cook Road	Deerlake Road
A-1	Lake Cook Road	Huehl Road/Brichwood Ave
A-1	Lake Cook Road	Lake-Cook Plaza/Corp. 500 Entrance
A-1	Lake Cook Road	Lee Road/Ridge Road
A-1	Lake Cook Road	Lexington Drive
A-1	Lake Cook Road	McHenry Road(I-83)
A-1	Lake Cook Road	Northbrook Court East Drive
A-1	Lake Cook Road	Northbrook West Drive
A-1	Lake Cook Road	Northgate Parkway
A-1	Lake Cook Road	Old Hicks Road
A-1	Lake Cook Road	Pfingten Road
A-1	Lake Cook Road	Pine Street
A-1	Lake Cook Road	Plum Grove Road
A-1	Lake Cook Road	Pointe Drive/Takeda Pwy
A-1	Lake Cook Road	Portwine Road

A-1	Lake Cook Road	Raupp Blvd
A-1	Lake Cook Road	Red Oak Lane-Center Drive
A-1	Lake Cook Road	Revere Drive
A-1	Lake Cook Road	Rt 41 NB Ramps
A-1	Lake Cook Road	Rt 41 SB Ramps
A-1	Lake Cook Road	Sanders Road
A-1	Lake Cook Road	Skokie Road
A-1	Lake Cook Road	Tri-State Toll Rd(I-294)Ramp A+C
A-1	Lake Cook Road	Tri-State Toll Rd(I-294)Ramp B+D
A-1	Lake Cook Road	Wal-Mart/Target Entrance(E OF Weiland Road)
A-1	Lake Cook Road	Waukegan Road
A-1	Lake Cook Road	Weidner Road
A-1	Lake Cook Road	Weiland Road
A-1	Lake Cook Road	Wilke Road
A-1	Lake Cook Road	Wilmot Road
A-1	Landmeier Road	Lively Boulevard
A-1	Landmeier Road	Tonne Road
A-1	Landwehr Road	Cherry Lane
A-1	Landwehr Road	Hospital Drive
A-1	Landwehr Road	Techny Road
A-1	Landwehr Road	Walters Avenue
A-1	Meacham Road	Biesterfield Road
A-1	Meacham Road	K-Mart Entrance-Texas Street
A-1	Meacham Road	Mallard Crossing
A-1	Meacham Road	Nerge Road
A-1	Meacham Road	Old Schaumburg Road
A-1	Meacham Road	Schaumburg Road
A-1	Michigan City Road	Wenthworth Avenue
A-1	Midlothian Turnpike	Kostner Avenue
A-1	Mt. Prospect Road	Universal Oil Products
A-1	Mt. Prospect(County Line) Road	Green Street/Franklin Avenue
A-1	Nerge Road	Plum Grove Road
A-1	Nerge Road/Pratt Blvd	Roselle Road
A-1	Oakton Street	Knox Avenue
A-1	Oakton Street	Kostner Avenue

A-1	Old Orchard Road	Edens Xway Ramps A&B
A-1	Old Orchard Road	Edens Xway Ramps C&D
A-1	Old Orchard Road	Lavergne Street
A-1	Old Orchard Road	Lawler Avenue
A-1	Old Orchard Road	Woods Drive
A-1	Park Boulevard	Pierce Road
A-1	Plainfield Road	Wolf Road
A-1	Plum Grove Road	Cougar Trail-Thacker Street
A-1	Plum Grove Road	Schaumburg Public Works
A-1	Plum Grove Road	Schaumburg Road
A-1	Plum Grove Road	Weathersfield way
A-1	Plum Grove Road	Wise Road
A-1	Potter Road	Church Street
A-1	Quentin Road	Illinois Avenue
A-1	Quentin Road	Wood Street/Crescent Avenue
A-1	Ridgeland Avenue	103rd Street-Tracey Avenue
A-1	Ridgeland Avenue	107th Street
A-1	Ridgeland Avenue	109th Street
A-1	Ridgeland Avenue	91st Street
A-1	Ridgeland Avenue	93rd Street
A-1	Ridgeland Avenue	Alan B Sheppard High School(13000 S.)
A-1	Ridgeland Avenue	St. Louis Demontfort School
A-1	Ridgeland Avenue	Steger Road
A-1	Ridgeland Avenue	Washington Street
A-1	Roberts Road	71st Street
A-1	Roberts Road	91st Street
A-1	Roberts Road	99th Street
A-1	Roselle Road	Bode Road
A-1	Roselle Road	Commerce Drive-Kristin Drive
A-1	Roselle Road	Elgin - O'Hare Ramp A & D
A-1	Roselle Road	Elgin - O'Hare Ramp B & C
A-1	Roselle Road	Hartford Drive
A-1	Roselle Road	Hillcrest Boulevard
A-1	Roselle Road	Northwest Toll Road Ramps
A-1	Roselle Road	Remington Road/Remington Circle

A-1	Roselle Road	Schaumburg Road
A-1	Roselle Road	State Parkway-Valley Lake Drive
A-1	Roselle Road	Town Square Access Drive
A-1	Roselle Road	Weatherfield Way
A-1	Roselle Road	Wise Road
A-1	Sanders Road	Commercial Avenue
A-1	Sanders Road	Mission Hills Road
A-1	Sanders Road	Techny Road
A-1	Sanders Road	Tri-State Drive
A-1	Sanders Road	Walters Avenue
A-1	Sanders Road	Wood Oaks Jr High School
A-1	Sauk Trail	Amy(Arquilla)/High School Drive
A-1	Sauk Trail	Blackhawk Drive/Lakewood Boulevard
A-1	Sauk Trail	Central Park Avenue/Main Street
A-1	Sauk Trail	Cicero Avenue(I-50)
A-1	Sauk Trail	Cottage Grove Avenue
A-1	Sauk Trail	Governors Highway
A-1	Sauk Trail	Harlem Avenue
A-1	Sauk Trail	I-57 Ramps A & B
A-1	Sauk Trail	I-57 Ramps C & D
A-1	Sauk Trail	Indianwood Boulevard
A-1	Sauk Trail	Jeffery Avenue
A-1	Sauk Trail	Karlov Avenue
A-1	Sauk Trail	Latonia Lane
A-1	Sauk Trail	Orchard Drive
A-1	Sauk Trail	Orion Avenue
A-1	Sauk Trail	Richton Road
A-1	Sauk Trail	Richton Square
A-1	Sauk Trail	Ridgeland Avenue
A-1	Sauk Trail	Shabbona Drive/Westwood Drive
A-1	Sauk Trail	Thomas Drive
A-1	Schaumburg Road	Braintree Drive
A-1	Schaumburg Road	East Avenue
A-1	Schaumburg Road	Friendship Drive/Branchwood Drive
A-1	Schaumburg Road	Grand Central Lane

A-1	Schaumburg Road	Hilltop Drive/ Post Office Drive
A-1	Schaumburg Road	Knollwood Drive
A-1	Schaumburg Road	Martingale Road
A-1	Schaumburg Road	National Parkway-Bar Harbor Drive
A-1	Schaumburg Road	Park Boulevard
A-1	Schaumburg Road	Pleasant-Town Square Drive
A-1	Schaumburg Road	Salem Drive
A-1	Schaumburg Road	Springinsguth Road
A-1	Schaumburg Road	Summit Drive
A-1	Schaumburg Road	Walnut Lane
A-1	Schaumburg Road	Wildflower Lane
A-1	Shoe Factory Road	Maureen Drive
A-1	State Street	Main Street(Young Street)
A-1	Steger Road	Union Street
A-1	Sunset Ridge Road	Skokie Blvd
A-1	Vollmer Road	Central Avenue
A-1	Vollmer Road	Ridgeland Avenue
A-1	Wagner Road	Glenview Road
A-1	West Bartlett Road	Gifford Road
A-1	West Bartlett Road	Naperville Road
A-1	West Lake Avenue	Landwehr Road
A-1	West Lake Avenue	Robin Lane/Glenbrook HS
A-1	Wise Road	Braintree Drive/Rodenburg Road
A-1	Wise Road	Mitchell Boulevard/Cedarcrest Drive
A-1	Wise Road	Salem Drive/Wright Boulevard
A-1	Wise Road	Springinsguth Road
A-1	Wolf Road	51st Street
A-1	Wolf Road	79th Street
A-1	Wolf Road	Butterfield Road
A-1	Wolf Road	Chestnut Street
A-1	Wolf Road	German Church Road
A-1	Wolf Road	Harrison Street
A-1	Wolf Road	Jackson Boulvard
A-1	Wolf Road	West Point Center(Hillside Shopping Center)
A-1	Wolf Road	Westbrook Corporate Center

A-2	139th Street	Harrison Avenue
A-2	175th Street	Oak Park Avenue
A-2	Sanders Road	Lindenwood Lane
A-2	Shoe Factory Road	Beverly Road
A-2	Shoe Factory Road	Rohrssen Road
A-3	Cottage Grove Road	Steger Road
A-3	Ridgeland Avenue	Home Avenue
A-3	Steger Road	Torrence Avenue
A-4	103rd Street	90th Avenue
A-4	104th Avenue	Palos West School
A-4	123rd Street	Loveland Street
A-4	171st Street	Ashland Avenue
A-4	80th Avenue	South of Southwest Highway
A-4	82nd Avenue	Prairie School(14100 South)
A-4	Bateman Road	Bateman Circle
A-4	Bluff Road	West of Stephen Street
A-4	Central Avenue	101st Street
A-4	Central Avenue	176th Street
A-4	County Line Road	57th Street
A-4	Crawford Avenue	148th Street
A-4	Crawford Avenue	Lunt Avenue
A-4	Ela Road	South of Bradwell Road
A-4	Francisco Avenue	South of Wireton Road
A-4	German Church Road	Trinity Lutheran School
A-4	Joe Orr Road	West of Stony Island Ave
A-4	Mt. Prospect Road	North Avenue Frontage Road
A-4	Plainfield Road	Highland School
A-4	Ridgeland Avenue	South of 115th Street
A-4	Roselle Road	Baldwin Road
A-4	Roselle Road	North of Central Road
A-4	Steger Road	Indiana Border EB
A-4	Vollmer Road	Between Kedzie Avenue and Western Avenue
A-4	Wagner Road	North of East Lake Avenue
A-4	Wolf Road	59th Street
A-4	Wolf Road	Pleasantdale School(7500S)

A-5	127th Street	Timberline Drive
A-5	80th Avenue	South 179th Street
A-5	84th Avenue	Kirby School
A-5	Arlington Heighs Road	Cosman Road
A-5	Central Avenue	173rd Street
A-5	Lake Avenue	Locust Road
A-5	Lake Avenue	Ridge Road
A-5	Roberts Road	97th Street
A-5	Sauk Trail	Arquilla Drive
A-5	Sauk Trail	Latonnia Lane
A-5	Shoe Factory Road	Higgins Road
A-5	Shoe Factory Road	West of Sutton Road
A-6	Roberts Road	Conrady Jr High School
A-7	Shoe Factory Road	East of CN Railroad Track
A-8	Z-69 W WASHINGTON	RM 2138
B1	167th Street	Equestrian Underpass East of Central Avenue
B1	171st Street	Wood Street to Ashland Ave
B1	87th Street	Roberts Road
B1	Cook County Maint. Facility1	Schaumburg
B1	Cook County Maint. Facility2	Desplaines
B1	Cook County Maint. Facility3	Lagrange Park
B1	Cook County Maint. Facility4	Palos Park
B1	Cook County Maint. Facility5	Blue Island
B1	East Lake Avenue	C&NW RR East of Pfingsten Road
B1	East Lake Avenue	Under Pass Lehigh Avenue
B1	Euclid Avenue	Quentin Road
B1	Francisco Avenue	Under pass RR Bridge at 74' N. of 131st St
B1	Lake Cook Road	Metra RR E of Deerlake
B1	Lake Cook Road	Slough Bridge(Between Hicks and Rand)
B1	Lake Cook Road	UP RR East of Skokie Blvd
B1	Sauk Trail	ICG RR East of Richton Road
B2	Ridgeland Avenue	Steger Road
B2	Sauk Trail	Ridgeland Avenue
B2	West Bartlett Road	Naperville Road
B3	Central Road	Roselle Road

C1	Crawford Avenue	Over Cal-Sag Channel
C1-C2	104th Avenue	Over Cal-Sag Channel
C1-C2	Francisco Avenue	Over Cal-Sag Channel
C1-C2	Ridgeland Avenue	Over Cal-Sag Channel
C2	87th Street	Over B & O CT RR (West of Oketo)
C2	County Line Road	Over Stevenson Exp (I-55)
D1	East Lake Avenue	Pump Station No.1
D2	East Lake Avenue	Pump Station No.2
D3	Sauk Trail	Pump Station No.3
D4	Lake Cook Road	Pump Station No.4
D5	Lake Cook Road	Pump Station No.5
D7	Green Bay Road	Pump Station No.7
F1	Cook County Maint. Facility1	Schaumburg
F1	Cook County Maint. Facility2	Desplaines
F1	Cook County Maint. Facility3	Lagrange Park
F1	Cook County Maint. Facility4	Palos Park
F1	Cook County Maint. Facility5	Blue Island
Under C	103rd Street	88th Avenue
Under C	167th(170th) Street	Cottage Grove Avenue
Under C	167th(170th) Street	Greenwood Avenue
Under C	87th Street	88th Avenue
Under C	88th Avenue	91st Street
Under C	Techny Road	Pfingsten Road

V List of Uniterrupible Power System Locations (As of April 1, 2013)

Street Name 1	Street Name 2	Ups Manufacturer	Installation Date	New Batteries	Note
103rd Street	52nd St/Laramie Ave	Brown Traffic	06/16/11		
103rd Street	Lawler Ave	Brown Traffic	07/22/11		
127th Street	Timberline Drive	Traffic Control	07/02/10		
167th Street	Oak Forest Avenue	Traffic Control	07/24/08	12/1/08	
167th Street	Cottage Grove				Under Construction
167th Street	Greenwood Ave				Under Construction
170th Street	Exchange Avenue	Traffic Control	12/17/09		
170th Street	The Landing Shopping Center Drive	Traffic Control	12/17/09		
175th Street	Kedzie Avenue	Traffic Control	11/06/09		
87th Street	Oak Park Ave	Brown Traffic	09/01/11		
94th Avenue	179th Street	Brown Traffic	01/10/12		
94th Avenue	Boardwalk Lane	Brown Traffic	02/20/13		
Arlington Heigths	Bernard Drive	Traffic Control	12/08/11		
Arlington Heigths	Devon Ave	Traffic Control	10/14/09		
Arlington Heigths	University Drive	Traffic Control	12/08/11		
Central Ave	83rd St	Brown Traffic	06/03/11		
Central Ave	99th St	Brown Traffic	06/16/11		
Central Ave	103rd St	Brown Traffic	06/03/11		
Central Ave	107th St	Brown Traffic	06/16/11		
Central Road	Roselle Road	Meade	11/18/10		
Dempster Street	Linneman Road	Meade	12/17/10		
East Lake Ave	Patriot Road(Telegraph)	Brown Traffic	07/01/05	3/1/11	
East Lake Ave	Pfingsten Road	Brown Traffic	07/01/05	3/1/11	
East Lake Ave	Shermer Road	Brown Traffic	10/01/05	3/1/11	
Lake Cook Road	Deer Lake Road	Traffic Control	05/29/12		
Lake Cook Road	Huehl Rd/ Birchwood Ave	Traffic Control	05/29/12		
Lake Cook Road	Lake Cook Plaza				Under Construction
Lake Cook Road	Pfingsten Road	Traffic Control	05/29/12		

Lake Cook Road	Pine Street	Traffic Control	06/01/12		
Lake Cook Road	Portwine Road	Traffic Control	01/12/11		
Lake Cook Road	Rt 41 NB Ramps	Traffic Control	01/12/11		
Lake Cook Road	Rt 41 SB Ramps	Traffic Control	01/12/11		
Lake Cook Road	Skokie Road	Traffic Control	01/12/11		
Lake Cook Road	Waukegan Road				Under Construction
Landwehr Ave	Hospital Drive	Traffic Control	12/06/11		
Nerge Road/Pratt Blvd	Roselle Road	Meade	11/18/10		
Plum Grove Rd	Wise Road	Brown Traffic	3/17/09		
Potter Road	Church Street	Traffic Control	11/18/10		
Quentin Road	Wood St/Crescent Ave	Traffic Control	10/18/12		
Ridgeland Ave	91st St	Brown Traffic	09/29/11		
Ridgeland Ave	103rd Street-Tracey Ave	Traffic Control	10/30/08	12/1/08	
Ridgeland Ave	St. Louis De Montfort	Brown Traffic	06/23/11		
Ridgeland Ave	Steger Road	Traffic Control	4/18/11		
Roselle Road	Elgin - O'Hare Ramp A & D	Meade	11/18/10		
Roselle Road	Elgin - O'Hare Ramp B & C	Meade	11/18/10		
Roselle Road	Hillcrest Boulevard	Meade	11/18/10		
Roselle Road	Northwest Tollway Ramps	Meade	11/18/10		
Sauk Trail	I-57 Ramps A & B	Traffic Control	06/13/07	1/3/11	
Sauk Trail	I-57 Ramps C & D	Traffic Control	06/13/07	1/3/11	
Sauk Trail	Ridgeland Ave	Traffic Control	04/18/11		
State Street	Main Street(Young Street)	Brown Traffic	07/27/09		
Techny Road	Pfingsten Road				Under Construction
West Bartlett Rd	Naperville Road	Brown Traffic	07/11/11		

VI List of LED Traffic Signal Locations (As of April 1, 2013)

Type	Street Name 1	Street Name 2	Installation Date	Pedestrian Installation Date	Note
A-1	103rd Street	52nd Avenue/Laramie Avenue	06/16/11	06/16/11	DIALIGHT
A-1	103rd Street	76th Avenue/Terry Drive	11/22/11	11/22/11	DIALIGHT
A-1	103rd Street	88th Avenue	11/14/11	11/14/11	DIALIGHT
A-1	103rd Street	Central Avenue	06/03/11	06/03/11	DIALIGHT
A-1	103rd Street	Lawler Avenue	07/22/11	07/22/11	DIALIGHT
A-1	103rd Street	Roberts Road	11/14/11	11/14/11	DIALIGHT
A-1	104th Avenue	131st Street	10/28/11		DIALIGHT
A-1	104th Avenue	179th Street	11/14/11	11/14/11	DIALIGHT
A-1	107th Street	Roberts Road	03/05/09	03/05/09	GELCORE
A-1	108th Avenue	153th Street	04/23/09	04/23/09	GELCORE
A-1	115th Street	Ridgeland Avenue	05/17/06	04/24/12	GELCORE
A-1	123rd Street	Kostner Avenue	05/09/11	05/09/11	DIALIGHT
A-1	127th Street	I-355 East Ramp	06/06/08		GELCORE
A-1	127th Street	I-355 Ramp A+B (W Ramp)	03/04/08		GELCORE
A-1	127th Street	Timberline Drive	07/02/10	07/02/10	GELCORE
A-1	131st Street	Bell Road	10/30/06		GELCORE
A-1	131st Street	Carl Sandburg H.S.	02/02/06	02/02/06	GELCORE
A-1	131st Street	Will Cook Road	07/20/06		GELCORE
A-1	131st Street	Wolf Road	07/20/06		GELCORE
A-1	138th Street	School Street	12/01/11		DIALIGHT
A-1	143rd Street	Ridgeland Avenue	01/30/12	01/30/12	DIALIGHT
A-1	151st Street	80th Avenue	06/01/12	06/01/12	GELCORE
A-1	151st Street	82nd Avenue	06/01/12		GELCORE
A-1	151st Street	Oak Park Avenue	01/27/09		DIALIGHT
A-1	153rd Street	100th Avenue/West Avenue	12/12/11	12/12/11	DIALIGHT
A-1	167th Street	104th Avenue	02/22/06		DIALIGHT
A-1	167th Street	108th Avenue	03/10/06		DIALIGHT
A-1	167th Street	Central Avenue	10/30/08	10/30/08	DIALIGHT
A-1	167th Street	Head Avenue	11/16/07	11/16/07	GELCORE
A-1	167th Street	Kedzie Avenue	12/10/07		GELCORE

A-1	167th Street	Kilbourn Avenue	11/16/07		GELCORE
A-1	167th Street	Oak Park Avenue	10/30/08	10/30/08	DIALIGHT
A-1	167th Street	Oak Forest Avenue	07/24/08		GELCORE
A-1	167th Street	Will Cook Road	02/24/06		DIALIGHT
A-1	167th(170th) St	Paxton Avenue	12/07/11		DIALIGHT
A-1	170th Street	Exchange Avenue	12/17/09		GELCORE
A-1	170th Street	The Landing Shopping Center Drive	1/11/10		GELCORE
A-1	171st Street	80th Avenue	12/12/11	12/12/11	DIALIGHT
A-1	171st Street	84th Avenue	12/30/11		DIALIGHT
A-1	171st Street	88th Avenue	11/21/11		DIALIGHT
A-1	171st Street	94th Avenue	11/21/11		DIALIGHT
A-1	171st Street	Ashland Avenue	07/27/05		DIALIGHT
A-1	171st Street	Center Street	10/17/11		DIALIGHT
A-1	171st Street	Victor Andrew High School	12/12/11		DIALIGHT
A-1	175th Street	Kedzie Avenue	11/06/09		GELCORE
A-1	179th Street	108th Avenue	11/02/11	11/02/11	DIALIGHT
A-1	183rd Street	76th Avenue	08/24/06		DIALIGHT
A-1	26th Street	State Street	05/22/07		GELCORE
A-1	79th Street	County Line Road	03/01/05	03/01/05	GELCORE
A-1	80th Avenue	157th Street	05/31/12	05/31/12	GELCORE
A-1	80th Avenue	167th Street	12/30/11	12/30/11	DIALIGHT
A-1	80th Avenue	175th Street	12/30/11	12/30/11	DIALIGHT
A-1	80th Avenue	179th Street/Metra Entrance	01/18/12	01/18/12	DIALIGHT
A-1	80th Avenue	183rd Street	01/30/12		DIALIGHT
A-1	80th Avenue	Wheerler Drive	05/03/12	05/03/12	GELCORE
A-1	82nd Avenue	135th Street	11/19/07		GELCORE
A-1	82nd Avenue	143rd Street	11/19/07	11/19/07	GELCORE
A-1	84th Avenue	175th Street	12/30/11	12/30/11	DIALIGHT
A-1	87th Street	78th Avenue	01/30/12	01/30/12	DIALIGHT
A-1	87th Street	88th Avenue	03/02/07	03/02/07	DIALIGHT
A-1	87th Street	Central Avenue	05/09/11	05/09/11	DIALIGHT
A-1	87th Street	Kean Avenue	10/19/11	10/19/11	DIALIGHT
A-1	87th Street	Oak Park Avenue	09/01/11		DIALIGHT
A-1	87th Street	Oketo Avenue	01/30/12	01/30/12	DIALIGHT

A-1	87th Street	Roberts Road	06/22/06		GELCORE
A-1	88th Avenue	107th Street	08/17/07	08/17/07	DIALIGHT
A-1	94th Avenue	167th Street	11/01/11	11/01/11	DIALIGHT
A-1	94th Avenue	179th Street	01/10/12	01/10/12	DIALIGHT
A-1	94th Avenue	Boardwalk Lane	02/20/13	02/20/13	DIALIGHT
A-1	Arlington Heights Rd	Biesterfield Rd/ Kennedy Blvd	12/27/05	01/10/11	DIALIGHT/ PED-GE
A-1	Arlington Heights Rd	Cosman Road	07/15/05	07/15/05	DIALIGHT
A-1	Arlington Heights Rd	Devon Avenue	10/14/09	10/14/09	GELCORE
A-1	Arlington Heights Rd	Elk Grove Blvd	07/18/05	07/18/05	DIALIGHT
A-1	Arlington Heights Rd	Hintz Road	02/17/09	02/17/09	GELCORE
A-1	Arlington Heights Rd	Lake Cook Road	06/07/12	06/07/12	DIALIGHT
A-1	Arlington Heights Rd	Landmeier Road	07/18/05	07/18/05	DIALIGHT
A-1	Arlington Heights Rd	Nichols Road/Bernard Dr	06/07/12	12/08/11	DIALIGHT/ PED-GE
A-1	Arlington Heights Rd	Oakton Street	07/18/05	07/18/05	DIALIGHT
A-1	Arlington Heights Rd	University Drive	12/08/11		DIALIGHT
A-1	Ashland Avenue	175th Street	12/22/05	11/25/08	DIALIGHT
A-1	Ashland Avenue	Sauk Trail	06/22/07		GELCORE
A-1	Ashland Avenue/King Road	Steger Road	06/12/07		GELCORE
A-1	Bartlett Road	Bode Road	03/14/06	03/14/06	DIALIGHT
A-1	Bartlett Road	Schaumburg Road	04/20/06	04/20/06	DIALIGHT
A-1	Bartlett Road	Shoe Factory Road	01/04/05	01/04/05	GELCORE
A-1	Bartlett Road	Streamwood Blvd	04/20/06	04/20/06	DIALIGHT
A-1	Brainard Avenue	Plainfield Road	07/06/06		GELCORE
A-1	Buffalo Grove Road	Bernard Drive	03/28/12		DIALIGHT
A-1	Buffalo Grove Rd/Windsor Dr.	Hintz Road	06/06/12	06/06/12	DIALIGHT
A-1	Buffalo Grove Road	Lake Cook Road	06/07/12	06/07/12	DIALIGHT
A-1	Busse Road	Lincoln Street	05/30/12	05/30/12	DIALIGHT
A-1	Busse Road	Westbrook School	03/28/12	03/28/12	DIALIGHT
A-1	Camp McDonald Rd	Schoenbeck Road	05/03/06	05/03/06	GELCORE
A-1	Camp McDonald Rd	Wheeling Road	05/03/06		GELCORE
A-1	Central Avenue	107th Street	06/16/11	06/16/11	DIALIGHT
A-1	Central Avenue	115th Street	05/09/11		DIALIGHT

A-1	Central Avenue	151st Street	05/30/12	05/30/12	GELCORE
A-1	Central Avenue	155th Street/ James Drive	11/14/11	11/14/11	DIALIGHT
A-1	Central Avenue	83rd Street	06/03/11	06/03/11	DIALIGHT
A-1	Central Avenue	91st Street	05/09/11		DIALIGHT
A-1	Central Avenue	99th Street	06/16/11	06/16/11	DIALIGHT
A-1	Central Avenue	Albert Drive	11/14/11	11/14/11	DIALIGHT
A-1	Central Avenue	Midlothian Turnpike	10/31/11		DIALIGHT
A-1	Central Avenue	Northwest Community Hospital	11/30/12	11/30/12	DIALIGHT
A-1	Central Avenue	Southwest Highway	07/21/11	07/21/11	DIALIGHT
A-1	Central Road	Ela Road	07/27/05	07/27/05	DIALIGHT
A-1	Central Road	Fernandez Avenue	03/21/12	03/21/12	DIALIGHT
A-1	Central Road	Freeman Rd/Huntington Blvd	07/25/05		DIALIGHT
A-1	Central Road	New Wilke Road	07/29/05		DIALIGHT
A-1	Central Road	Roselle Road	12/22/05	12/22/05	DIALIGHT
A-1	Church Street	Lockwood Avenue	06/06/12	06/06/12	DIALIGHT
A-1	Cottage Grove Road	Glenwood Lansing Road	10/29/07		DIALIGHT
A-1	Cottage Grove Road	Joe Orr Road	06/22/07		GELCORE
A-1	County Line Road	Burr Ridge Parkway (S Frontage Rd)	07/18/06	01/13/05	GELCORE
A-1	County Line Road	Carriage Way Lane	06/22/06	06/22/06	GELCORE
A-1	County Line Road	German Church Road	03/01/05	03/01/05	GELCORE
A-1	County Line Road	Plainfield Road	06/22/06		GELCORE
A-1	Crawford Avenue	131st Street	05/22/06		GELCORE
A-1	Crawford Avenue	135th Street	05/22/06		GELCORE
A-1	Crawford Avenue	139th Street	05/23/06		GELCORE
A-1	Crawford Avenue	145th Street	05/24/06	12/21/11	GELCORE
A-1	Crawford Avenue	152th Street	11/17/05	11/17/05	DIALIGHT
A-1	Crawford Avenue	Howard Street	07/13/05	07/13/05	GELCORE
A-1	Crawford Avenue	Main Street	05/30/12	05/30/12	DIALIGHT
A-1	Crawford Avenue	Midlothian Turnpike	05/23/06		GELCORE
A-1	Crawford Avenue	Rexford Road	12/08/11		GELCORE
A-1	Dempster Street	Linneman Road	12/21/10	12/21/10	GELCORE
A-1	Dempster Street	Marshall Blvd	05/30/12	05/30/12	DIALIGHT
A-1	Dempster Street	Mt. Prospect Road	11/30/12		DIALIGHT

A-1	Devon Avenue	Lively Blvd	12/21/07		GELCORE
A-1	Devon Avenue	Mittel Blvd/Ridge Avenue	03/21/12		DIALIGHT
A-1	Devon Avenue	Nerge Avenue	06/06/12	06/06/12	GELCORE
A-1	Devon Avenue	Park Blvd/Pierce Road	07/12/05		DIALIGHT
A-1	Devon Avenue	Tonne Road	03/08/07	03/08/07	GELCORE
A-1	East Lake Ave	Glenview Fire Station	06/04/12		GELCORE
A-1	East Lake Ave	Harms Road	07/03/05	07/03/05	GELCORE
A-1	East Lake Ave	Laramie Avenue	5/30/12	5/30/12	DIALIGHT
A-1	East Lake Ave	Patriot Road(Telegraph)	07/26/05	07/26/05	DIALIGHT
A-1	East Lake Ave	Pfingsten Road	08/04/05	08/04/05	DIALIGHT
A-1	East Lake Ave	Scott Foresman/Tall Tree Rd	06/05/12	06/05/12	GELCORE
A-1	East Lake Ave	Shermer Road	10/11/05	10/11/05	DIALIGHT
A-1	East Lake Ave	Sunset Ridge Road	06/05/12	06/05/12	GELCORE
A-1	East Lake Ave	Wagner Road	06/04/12	06/04/12	GELCORE
A-1	East River Road	Tri-State Ramp B(N. of Golf Road)	05/11/06		GELCORE
A-1	Edens West Frontage Road	I-94 Off Ramp	05/02/06	05/02/06	DIALIGHT
A-1	Edens West Frontage Road	Tower Road	05/02/06		DIALIGHT
A-1	Euclid Avenue	Burning Bush Lane	05/30/12	05/30/12	DIALIGHT
A-1	Euclid Avenue	Chester Lane	12/15/11	12/15/11	GELCORE
A-1	Euclid Avenue	Harper College	12/16/11	12/16/11	GELCORE
A-1	Euclid Avenue	Plum Grove Road	05/21/09	05/21/09	GELCORE
A-1	Euclid Avenue	Quentin Road	11/21/05	11/21/05	DIALIGHT
A-1	Euclid Avenue	Rohlwing Road	07/28/05	07/28/05	DIALIGHT
A-1	Euclid Avenue	Roselle Road	12/09/05		GELCORE
A-1	Euclid Avenue	Salt Creek Lane	12/15/11		GELCORE
A-1	Euclid Avenue	Sycamore Lane	05/05/06	05/05/06	GELCORE
A-1	Euclid Avenue	Wheeling Road	4/30/12	06/19/09	DIALIGHT
A-1	Euclid Avenue	Wilke Road	03/21/12	03/21/12	DIALIGHT
A-1	Flossmoor Road	Kedzie Avenue	08/01/08	08/01/08	DIALIGHT
A-1	Glenwood Lansing Rd	Stony Island Avenue	05/31/07	05/31/07	GELCORE
A-1	Glenwood Lansing Rd	Wentworth Avenue	08/10/07	05/01/07	GELCORE
A-1	Greenwood Ave	Church Street	05/11/06	05/11/06	GELCORE
A-1	Greenwood Avenue	Normal Avenue	05/17/06	05/17/06	GELCORE

A-1	Happ Road	New Trier Center	03/28/12	03/28/12	DIALIGHT
A-1	Harms Road	Glenview Road	4/20/12	4/20/12	DIALIGHT
A-1	Harms Road	Old Orchard Road	05/12/06	05/12/06	GELCORE
A-1	Hibbard Road	Glenview Road	05/30/12	05/30/12	DIALIGHT
A-1	Hintz Road	Chaddick Drive	06/06/12		DIALIGHT
A-1	Hintz Road	Schoenbeck Road	06/06/12		DIALIGHT
A-1	Hintz Road	Wheeling Road	06/06/12		DIALIGHT
A-1	Hintz Road	Wolf Road	05/04/06	05/04/06	GELCORE
A-1	Joe Orr Road	State Street	06/22/07		GELCORE
A-1	Joe Orr Road	Stony Island Ave	05/23/07		GELCORE
A-1	Kedzie Avenue	139th Street	11/22/11		DIALIGHT
A-1	Kedzie Avenue	155th Street	11/04/11		DIALIGHT
A-1	Kedzie Avenue	163rd Street	01/08/13	01/08/13	DIALIGHT
A-1	Kedzie Avenue	183rd Street	12/01/11		DIALIGHT
A-1	Kedzie Avenue	Country Aire Drive	11/04/11		DIALIGHT
A-1	Kedzie Avenue	Homewood-Flossmoor HS (Viking Dr)	12/01/11		DIALIGHT
A-1	Kedzie Avenue	Rexford Road (Claire Blvd)	11/22/11		DIALIGHT
A-1	Kedzie Avenue	South Suburban Hospital (17800S)	01/08/13	01/08/13	DIALIGHT
A-1	Kedzie Avenue	Vollmer Road	05/30/07	05/30/07	GELCORE
A-1	Lake Avenue	Edens Plaza Entrance	06/04/12	06/04/12	GELCORE
A-1	Lake Avenue	Hunter Road-23rd Street	08/18/06	08/18/06	GELCORE
A-1	Lake Avenue	Illinois Road	08/16/06	08/16/06	GELCORE
A-1	Lake Avenue	Locust Road	08/16/06	08/16/06	GELCORE
A-1	Lake Avenue	Ridge Road	07/20/07	07/20/07	GELCORE
A-1	Lake Cook Road	Carlisle Ave/Pine Tree Road	12/16/11	12/16/11	DIALIGHT
A-1	Lake Cook Road	Commerce Clearing House	08/22/05		GELCORE
A-1	Lake Cook Road	Caribou Crossing/Discover Way	10/18/05	10/18/05	GELCORE
A-1	Lake Cook Road	Deer Lake Road	05/29/12	05/29/12	GELCORE
A-1	Lake Cook Road	Deer Park	06/05/12	06/05/12	GELCORE
A-1	Lake Cook Road	Huehl Rd/Birchwood Ave	05/29/12	05/29/12	GELCORE
A-1	Lake Cook Road	Lake Cook Plaza/Corp. Dr	11/19/12	11/19/12	DIALIGHT
A-1	Lake Cook Road	Lee Road/Ridge Road	06/06/12		DIALIGHT
A-1	Lake Cook Road	Lexington Drive	08/25/05	08/25/05	GELCORE

A-1	Lake Cook Road	McHenry Road(I-83)	06/07/12	06/07/12	DIALIGHT
A-1	Lake Cook Road	Northbrook Court East Drive	08/15/05	08/15/05	GELCORE
A-1	Lake Cook Road	Northbrook West Drive	06/06/12		DIALIGHT
A-1	Lake Cook Road	Northgate Parkway	08/22/05		GELCORE
A-1	Lake Cook Road	Old Hicks Road	08/31/05		GELCORE
A-1	Lake Cook Road	Pfingsten Road	05/29/12	05/29/12	GELCORE
A-1	Lake Cook Road	Pine Street	06/01/12	06/01/12	GELCORE
A-1	Lake Cook Road	Plum Grove Road	06/05/12		GELCORE
A-1	Lake Cook Road	Pointe Drive	11/13/06		GELCORE
A-1	Lake Cook Road	Portwine Road	08/23/05		GELCORE
A-1	Lake Cook Road	Raupp Blvd	06/07/12	06/07/12	DIALIGHT
A-1	Lake Cook Road	Red Oak Lane-Center Drive	08/16/05	08/16/05	GELCORE
A-1	Lake Cook Road	Revere Drive	08/12/05		GELCORE
A-1	Lake Cook Road	Rt 41 NB Ramps	08/10/05		GELCORE
A-1	Lake Cook Road	Rt 41 SB Ramps	08/11/05		GELCORE
A-1	Lake Cook Road	Sanders Road	08/19/05		GELCORE
A-1	Lake Cook Road	Skokie Road	08/26/05	08/26/05	GELCORE
A-1	Lake Cook Road	Tri-State Ramp A+C	04/20/12		DIALIGHT
A-1	Lake Cook Road	Tri-State Toll Road(I-294) Ramp B (East Ramp)	05/15/09		GELCORE
A-1	Lake Cook Road	Wal-Mart/Target Entrance(E OF Weiland Road)	08/29/05	08/29/05	GELCORE
A-1	Lake Cook Road	Waukegan Road	11/19/12	11/19/12	DIALIGHT
A-1	Lake Cook Road	Weidner Road	08/30/05	08/30/05	GELCORE
A-1	Lake Cook Road	Weiland Road	06/06/12		DIALIGHT
A-1	Lake Cook Road	Wilke Road	11/19/12		DIALIGHT
A-1	Lake Cook Road	Wilmot Road	05/15/09		GELCORE
A-1	Landmeier Road	Lively Boulevard	03/22/06	03/22/06	DIALIGHT
A-1	Landmeier Road	Tonne Road	07/18/05		DIALIGHT
A-1	Landwehr Road	Cherry Lane	05/10/06	05/10/06	GELCORE
A-1	Landwehr Road	Hospital Drive	12/06/11	12/06/11	GELCORE
A-1	Landwehr Road	Techny Road	04/20/12	04/20/12	DIALIGHT
A-1	Landwehr Road	Walters Avenue	04/20/12	04/20/12	DIALIGHT
A-1	Meacham Road	Biesterfield Road	07/21/05	07/21/05	DIALIGHT
A-1	Meacham Road	K-Mart Entrance-Texas Street	07/22/05	07/22/05	DIALIGHT

A-1	Meacham Road	Mallard Crossing	07/20/05	07/20/05	DIALIGHT
A-1	Meacham Road	Nerge Road	07/20/05	07/20/05	DIALIGHT
A-1	Meacham Road	Old Schaumburg Road	03/06/12		DIALIGHT
A-1	Meacham Road	Schaumburg Road	02/17/12	02/17/12	DIALIGHT
A-1	Michigan City Road	Wentworht Ave	10/24/06		GELCORE
A-1	Midlothian Turnpike	Kostner Avenue	10/31/11		DIALIGHT
A-1	Mt. Prospect (County Line) Road	Green Street/Franklin Avenue	03/21/12		DIALIGHT
A-1	Mt. Prospect Road	UOP	03/28/12	03/28/12	DIALIGHT
A-1	Nerge Road	Plum Grove Road	03/21/12	03/21/12	DIALIGHT
A-1	Nerge Road/Pratt Blvd	Roselle Road	02/01/06		DIALIGHT
A-1	Oakton Street	Knox Avenue	05/15/06	05/15/06	GELCORE
A-1	Oakton Street	Kostner Avenue	04/30/12	04/30/12	DIALIGHT
A-1	Old Orchard Road	Eden Xway Ramps A&B	11/19/12	11/19/12	DIALIGHT
A-1	Old Orchard Road	Eden Xway Ramps C&D	11/19/12	11/19/12	DIALIGHT
A-1	Old Orchard Road	Lavergne Avenue	11/30/12	11/30/12	DIALIGHT
A-1	Old Orchard Road	Lawler Avenue	11/19/12	11/19/12	DIALIGHT
A-1	Old Orchard Road	Wood Drive	05/04/07		GELCORE
A-1	Park Blvd	Pierce Road	05/30/12		DIALIGHT
A-1	Plainfield Road	Wolf Road	04/15/05	04/15/05	DIALIGHT
A-1	Plum Grove Road	Cougar Trail-Thacker Street	03/06/12	03/06/12	DIALIGHT
A-1	Plum Grove Road	Schaumburg Public Works	03/06/12		DIALIGHT
A-1	Plum Grove Road	Schaumburg Road	02/17/12	02/17/12	DIALIGHT
A-1	Plum Grove Road	Weathersfield Way	03/03/12	03/06/12	DIALIGHT
A-1	Plum Grove Road	Wise Road	03/17/09	03/17/09	DIALIGHT
A-1	Potter Road	Church Street	11/18/10	11/18/10	GELCORE
A-1	Quentin Road	Illinois Avenue	12/22/05	12/22/11	DIALIGHT
A-1	Quentin Road	Wood Street	02/06/12	02/06/12	DIALIGHT
A-1	Ridgeland Avenue	103rd Street-Tracey Avenue	05/19/06	04/25/12	GELCORE
A-1	Ridgeland Avenue	107th Street	05/18/06	04/25/12	GELCORE
A-1	Ridgeland Avenue	109th Street	05/18/06	04/25/12	GELCORE
A-1	Ridgeland Avenue	91st Street	09/29/11	09/29/11	DIALIGHT
A-1	Ridgeland Avenue	93rd Street	03/31/06	03/31/06	GELCORE
A-1	Ridgeland Avenue	Alan B Sheppard H.S.	11/22/11	11/22/11	DIALIGHT

A-1	Ridgeland Avenue	St. Louis Demontfort School	06/23/11	06/23/11	DIALIGHT
A-1	Ridgeland Avenue	Steger Road	04/18/11		GELCORE
A-1	Ridgeland Avenue	Washington Street	05/19/06	12/21/11	GELCORE
A-1	Roberts Road	71st Street	06/27/06		GELCORE
A-1	Roberts Road	91st Street	10/27/11	10/27/11	DIALIGHT
A-1	Roberts Road	99th Street	10/19/11		DIALIGHT
A-1	Roselle Road	Bode Road	08/05/05	08/05/05	DIALIGHT
A-1	Roselle Road	Commerce Drive-Kristin Drive	08/02/05	08/02/05	DIALIGHT
A-1	Roselle Road	Elgin - O'Hare Ramp A & D	02/01/06		DIALIGHT
A-1	Roselle Road	Elgin - O'Hare Ramp B & C	02/01/06		DIALIGHT
A-1	Roselle Road	Hartford Drive	05/31/06	05/31/06	DIALIGHT
A-1	Roselle Road	Hillcrest Boulevard	08/04/05	08/04/05	DIALIGHT
A-1	Roselle Road	Northwest Toll Road Ramps	12/22/05		DIALIGHT
A-1	Roselle Road	Remington Road/Remington Circle	08/04/05	08/04/05	DIALIGHT
A-1	Roselle Road	Schaumburg Road	02/6/12	5/12/10	DIALIGHT PED-GE
A-1	Roselle Road	State Parkway-Valley Lake Drive	08/03/05	08/03/05	DIALIGHT
A-1	Roselle Road	Town Square Access Drive	02/6/12	5/12/10	DIALIGHT PED-GE
A-1	Roselle Road	Weatherfield Way	07/14/06	07/14/06	DIALIGHT
A-1	Roselle Road	Wise Road	03/14/06	03/14/06	DIALIGHT
A-1	Sanders Road	Commercial Avenue	05/09/06	05/09/06	GELCORE
A-1	Sanders Road	Mission Hills Road	05/08/06		GELCORE
A-1	Sanders Road	Techny Road	05/05/06		GELCORE
A-1	Sanders Road	Tri-State Drive	04/20/12		DIALIGHT
A-1	Sanders Road	Walters Avenue	05/10/06	05/10/06	GELCORE
A-1	Sanders Road	Wood Oaks Jr High School	05/09/06	05/09/06	GELCORE
A-1	Sauk Trail	Amy(Arquilla)/High School Dr	07/10/07	07/10/07	GELCORE
A-1	Sauk Trail	Blackhawk Dr/Lakewood Blvd	07/20/05		GELCORE
A-1	Sauk Trail	Central Park Ave/Main St	07/20/05		GELCORE
A-1	Sauk Trail	Cicero Avenue(I-50)	07/10/07	07/10/07	GELCORE
A-1	Sauk Trail	Cottage Grove Avenue	12/07/11		DIALIGHT
A-1	Sauk Trail	Governors Highway	08/01/07	08/01/07	GELCORE
A-1	Sauk Trail	Harlem Avenue	12/12/11		DIALIGHT

A-1	Sauk Trail	I-57 Ramps A & B	06/13/07		GELCORE
A-1	Sauk Trail	I-57 Ramps C & D	06/13/07		GELCORE
A-1	Sauk Trail	Indianwood Boulevard	07/13/05	07/13/05	GELCORE
A-1	Sauk Trail	Jeffery Avenue	06/27/07		GELCORE
A-1	Sauk Trail	Karlov Avenue	08/01/07	08/01/07	GELCORE
A-1	Sauk Trail	Latonia Lane	05/21/07	05/21/07	GELCORE
A-1	Sauk Trail	Orchard Drive	04/24/12	04/24/12	GELCORE
A-1	Sauk Trail	Orion Avenue	06/22/07	06/22/07	GELCORE
A-1	Sauk Trail	Richton Road	06/27/07	06/27/07	GELCORE
A-1	Sauk Trail	Richton Square	12/23/05	12/23/05	GELCORE
A-1	Sauk Trail	Ridgeland Avenue	04/18/11		GELCORE
A-1	Sauk Trail	Shabbona Dr/Westwood Dr	08/31/05	08/31/05	GELCORE
A-1	Sauk Trail	Thomas Drive	06/12/07	06/12/07	GELCORE
A-1	Schaumburg Road	Braintree Drive	12/20/12	12/20/12	DIALIGHT
A-1	Schaumburg Road	East Avenue	05/09/06		DIALIGHT
A-1	Schaumburg Road	Friendship Dr/Branchwood Dr	12/20/12	12/20/12	DIALIGHT
A-1	Schaumburg Road	Grand Central Lane	03/06/12	03/06/12	DIALIGHT
A-1	Schaumburg Road	Hilltop Dr/ Post Office Dr	12/20/12	12/20/12	DIALIGHT
A-1	Schaumburg Road	Knollwood Drive	11/30/12	11/30/12	DIALIGHT
A-1	Schaumburg Road	Martingale Road	02/17/12		DIALIGHT
A-1	Schaumburg Road	National Pkwy-Bar Harbor Dr	12/20/12	12/20/12	DIALIGHT
A-1	Schaumburg Road	Park Boulevard	04/25/06	04/25/06	DIALIGHT
A-1	Schaumburg Road	Pleasant-Town Square Dr	02/06/12	05/12/10	DIALIGHT PED-GE
A-1	Schaumburg Road	Salem Drive		06/01/12	DIALGIHT
A-1	Schaumburg Road	Summit Drive	12/20/12	12/20/12	DIALIGHT
A-1	Schaumburg Road	Walnut Lane	03/23/06	03/23/06	GELCORE
A-1	Schaumburg Road	Wildflower Lane	02/17/12		DIALIGHT
A-1	Shoe Factory Road	Maureen Drive	08/23/06	08/23/06	DIALIGHT
A-1	Springinsguth Rd	Schaumburg Road	03/04/05	03/04/05	GELCORE
A-1	State Street	Main Street	07/27/09	07/27/09	GELCORE
A-1	Steger Road	Union Street	05/29/07	05/29/07	GELCORE
A-1	Sunset Ridge Road	Skokie Road	12/01/05	12/01/05	GELCORE
A-1	Vollmer Road	Central Avenue	04/23/12		DIALIGHT
A-1	Vollmer Road	Ridgeland Avenue	04/23/12		DIALIGHT

A-1	Wagner Road	Glenview Road	05/12/06	05/12/06	GELCORE
A-1	West Bartlett Road	Gifford Road	07/26/05	11/23/11	DIALIGHT PED-GE
A-1	West Bartlett Road	Naperville Road	07/11/11	07/11/11	DIALIGHT
A-1	West Lake Ave	Landwehr Road	08/04/05	08/04/08	DIALIGHT
A-1	West Lake Ave	Robin Lane/Glenbrook HS	05/20/05	05/20/05	DIALIGHT
A-1	Wise Road	Braintree Dr/Rodenburg Rd	05/31/06	05/31/06	DIALIGHT
A-1	Wise Road	Mitchell Blvd/Cedarcrest Dr	05/31/06	05/31/06	DIALIGHT
A-1	Wise Road	Salem Dr/Wright Boulevard	09/16/11	09/16/11	GELCORE
A-1	Wise Road	Springinsguth Road	07/13/05	07/13/05	GELCORE
A-1	Wolf Road	51st Street	05/24/06	05/24/06	GELCORE
A-1	Wolf Road	79th Street	10/13/11	10/13/11	DIALIGHT
A-1	Wolf Road	Butterfield Road	05/26/06		GELCORE
A-1	Wolf Road	Chestnut Street	07/18/06	07/18/06	GELCORE
A-1	Wolf Road	German Church Road	12/13/06		DIALIGHT
A-1	Wolf Road	Harrison Street	05/25/06	05/25/06	GELCORE
A-1	Wolf Road	Jackson Boulvard	05/25/06	05/25/06	GELCORE
A-1	Wolf Road	West Point Center(Hillside Shopping Center)	05/25/06		GELCORE
A-1	Wolf Road	Westbrook Corporate Center	12/20/12	12/20/12	DIALIGHT
A-2	175th Street	Oak Park Avenue	09/28/07	09/28/07	DIALIGHT
A-3	Greenwood Road	144th Street	05/02/05		DIALIGHT
A-4	104th Avenue	Palos West School	05/31/12		GELCORE
A-4	123rd Street	Loveland Street	08/15/07		GELCORE
A-4	171st Street	Ashland Avenue	07/27/05		DIALIGHT
A-4	80th Avenue	S of Southwest Highway	08/29/05		GELCORE
A-4	Ela Road	South of Bradwell Road	04/28/11		GE
A-4	Joe Orr Road	Stony Island Avenue	05/22/07		GELCORE
A-4	Roselle Road	North of Central Road	12/22/05		DIALIGHT
A-4	Steger Road	Indiana Broder EB	05/29/05		GELCORE
A-4	Vollmer Road	Between Kedzie Avenue and Western Avenue	05/30/07		GELCORE
A-4	Wagner Road	North of East Lake Avenue	06/04/12		DIALIGHT
A-4	Wolf Road	59th Street	02/26/07		DIALIGHT
A-5	127th Street	Timberline Dr	6/22/10		GE
A-5	80th Avenue	South of 179th Street	10/05/12		GE

A-5	84th Avenue	Kirby School	10/07/05	1-GELCROE
A-5	Arlington Heights	Cosman Road	5/18/10	GELCORE
A-5	Central Ave	173rd Street	3/22/10	GELCORE
A-5	Lake Avenue	Locust Road	09/26/06	DIALIGHT
A-5	Lake Avenue	Ridge Road	01/21/05	DIALIGHT
A-5	Roberts Road	97th Street	08/29/05	GELCORE
A-5	Sauk Trail	Arquilla Drive	9/29/09	GELCORE
A-5	Sauk Trail	Latonnia Lane	9/29/09	GELCORE
A-5	Shoe Factory Road	Higgins Road	1/28/08	GELCORE
A-5	Shoe Factory Road	West of Sutton Road	11/12/09	GELCORE
Under Design	87th Street	Ridgeland Ave/Narragansett Ave/State Road		DIALIGHT
Under Constr	88th Ave	91st Street		
Under Constr	167th(170th) Street	Cottage Grove		
Under Constr	167th(170th) Street	Greenwood Ave		
Under Design	Crawford Avenue	Oakton Street		
Under Constr.	Techny Road	Pfingsten Road		

VII List of LED Street Name Sign Locations (As of April 1, 2013)

Street Name 1	Street Name 2	Installation Date
County Line Road	79th Street	02/24/2011
County Line Road	Burr Ridge Parkway	02/24/2011
County Line Road	Carriage Way	08/31/2010
County Line Road	German Church Road	08/18/2010
County Line Road	Plainfield Road	02/24/2011
Lake Cook Road	Arlington Heights Road	07/09/2009
Lake Cook Road	Buffalo Grove Road	07/09/2009
Lake Cook Road	Deer Park	11/25/2009
Lake Cook Road	Lee/Ridge Road	12/03/2009
Lake Cook Road	Lexington Drive	12/03/2009
Lake Cook Road	McHenry Road	07/09/2009
Lake Cook Road	Northgate Parkway	12/03/2009
Lake Cook Road	Old Hicks Road	11/25/2009
Lake Cook Road	Pfingsten Road	12/03/2009
Lake Cook Road	Pine Tree Road/Carlisle Avenue	12/03/2009
Lake Cook Road	Plum Grove Road	11/25/2009
Lake Cook Road	Portwine Road	12/03/2009
Lake Cook Road	Raupp Boulevard	07/09/2009
Lake Cook Road	Skokie Road	12/03/2009
Lake Cook Road	Weidner Road	07/09/2009
Lake Cook Road	Weiland Road	12/03/2009
Lake Cook Road	Wilke Road	11/25/2009
Lake Cook Road	Wilmot Road	09/10/2010
Roselle Road	Bode Road	09/13/2010
Roselle Road	Central Road	01/12/2011
Roselle Road	Commerce Drive/Kristin Drive	09/13/2010
Roselle Road	Euclid Avenue	01/12/2011
Roselle Road	Hartford Drive	09/17/2010
Roselle Road	Hillcrest Boulevard	09/10/2010
Roselle Road	Nerge Road	09/17/2010
Roselle Road	Remington Road/Remington Circle	09/13/2010
Roselle Road	State Parkway/Valley Lake Drive	09/13/2010

Roselle Road	Weathersfield Way	09/13/2010
Roselle Road	Wise Road	01/12/2011
Sauk Trail	Amy Drive	10/01/2010
Sauk Trail	Central Park Avenue	10/01/2010
Sauk Trail	Cicero Avenue	10/01/2010
Sauk Trail	Blackhawk Drive	10/01/2010
Sauk Trail	Governors Highway	10/01/2010
Sauk Trail	Harlem Avenue	02/24/2011
Sauk Trail	Indianwood Boulevard	10/01/2010
Sauk Trail	Kalov Avenue	10/01/2010
Sauk Trail	Latonia Lane	10/01/2010
Sauk Trail	Orchard Drive	10/01/2010
Sauk Trail	Richton Square	10/01/2010
Sauk Trail	Shabbona Drive/Westwood Drive	10/01/2010
Sauk Trail	Thomas Drive	10/01/2010
Sauk Trail	Western Avenue	10/01/2010
Sauk Trail	Ridgeland Avenue	06/24/2011

VIII LIST OF SOLAR FLASHER (AS OF APRIL 1, 2013)

Type	Street Name 1	Street Name 2	Installation Date	Installation Agency
A-5	127th Street	Timberline Drive	6/22/2010	Village of Lemont
A-5	80th Avenue	South of 179th Street	10/05/2012	Village of Tinley Park
A-5	84th Avenue	Kirby School	10/7/2005	Kirby School District 140
A-5	Arlington Heights Road	Cosman Road	5/18/2010	Cook County
A-5	Central Avenue	173rd Street	3/22/2010	Arbor Park School District 145
A-5	Lake Avenue	Locust Road	9/26/2006	Village of Wilmette
A-5	Lake Avenue	Ridge Road	1/21/2005	Village of Wilmette
A-5	Roberts Road	97th Street	8/29/2005	City of Hickory Hills
A-5	Sauk Trail	Arquilla Drive	9/29/2009	Village of Richton Park
A-5	Sauk Trail	Latonnia Lane	9/29/2009	Village of Richton Park
A-5	Shoe Factory Road	Higgins Road NB/SB	1/28/2008	Cook County
A-5	Shoe Factory Road	West of Sutton Road	10/2/2009	Cook County