If you plan to submit a bid directly to the Department of Transportation

PREQUALIFICATION

Any contractor who desires to become pre-qualified to bid on work advertised by IDOT must submit the properly completed pre-qualification forms to the Bureau of Construction no later that 4:30 p.m. prevailing time twenty-one days prior to the letting of interest. This pre-qualification requirement applies to first time contractors, contractors renewing expired ratings, contractors maintaining continuous pre-qualification or contractors requesting revised ratings. To be eligible to bid, existing pre-qualification ratings must be effective through the date of letting.

REQUESTS FOR AUTHORIZATION TO BID

Contractors downloading and/or ordering CD-ROM's and are wanting to bid on items included in a particular letting must submit the properly completed "Request for Authorization to Bid/or Not For Bid Status" (BDE 124INT) and the ORIGINAL, signed and notarized, "Affidavit of Availability" (BC 57) to the proper office no later than 4:30 p.m. prevailing time, three (3) days prior to the letting date.

WHO CAN BID ?

Bids will be accepted from only those companies that request and receive written **Authorization to Bid** from IDOT's Central Bureau of Construction.

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID? When a prospective prime bidder submits a "Request for Authorization to Bid/or Not For Bid Status"(BDE 124INT) he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued a **Proposal Denial and/or Authorization Form**, approved by the Central Bureau of Construction, that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Proposal Denial and/or Authorization Form** will indicate the reason for denial.

ABOUT AUTHORIZATION TO BID: Firms that have not received an authorization form within a reasonable time of complete and correct original document submittal should contact the department as to status. This is critical in the week before the letting. These documents must be received three days before the letting date. Firms unsure as to authorization status should call the Prequalification Section of the Bureau of Construction at the number listed at the end of these instructions.

ADDENDA AND REVISIONS: It is the contractor's responsibility to determine which, if any, addenda or revisions pertain to any project they may be bidding. Failure to incorporate all relevant addenda or revisions may cause the bid to be declared unacceptable.

Each addendum will be placed with the contract number. Addenda and revisions will also be placed on the Addendum/Revision Checklist and each subscription service subscriber will be notified by e-mail of each addendum and revision issued.

The Internet is the Department's primary way of doing business. The subscription server e-mails are an added courtesy the Department provides. It is suggested that bidder check IDOT's website http://www.dot.il.gov/desenv/delett.html before submitting final bid information.

IDOT is not responsible for any e-mail related failures.

Addenda Questions may be directed to the Contracts Office at (217)782-7806 or D&Econtracts@dot.il.gov

Technical Questions about downloading these files may be directed to Tim Garman (217)524-1642 or garmantr@dot.il.gov.

WHAT MUST BE INCLUDED WHEN BIDS ARE SUBMITTED?: Bidders need not return the entire proposal when bids are submitted. That portion of the proposal that must be returned includes the following:

1. All documents from the Proposal Cover Sheet through the Proposal Bid Bond
2. Other special documentation and/or information that may be required by the contract special provisions

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

ABOUT SUBMITTING BIDS: It is recommended that bidders deliver bids in person to insure they arrive at the proper location prior to the time specified for the receipt of bids. Any bid received at the place of letting after the time specified will not be accepted.

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

Questions Regarding	**Call**
Prequalification and/or Authorization to Bid	(217)782-3413
Preparation and submittal of bids	(217)782-7806
Mailing of plans and proposals	(217)782-7806
Electronic plans and proposals	(217)524-1642

ADDENDUMS AND REVISIONS TO THE PROPOSAL FORMS

Planholders should verify that they have received and incorporated the addendum and/or revision prior to submitting their bid. Failure by the bidder to include an addendum could result in a bid being rejected as irregular.

RETURN WITH BID

56

Proposal Submitted By
Name
Address
City

Letting September 22, 2006

BIDDERS NEED NOT RETURN THE ENTIRE PROPOSAL
(See instructions inside front cover)

NOTICE TO PROSPECTIVE BIDDERS
This proposal can be used for bidding purposes by only those companies that request and receive written AUTHORIZATION TO BID from IDOT's Central Bureau of Construction.
(SEE INSTRUCTIONS ON THE INSIDE OF COVER)

Notice To Bidders, Specifications, Proposal, Contract and Contract Bond

Illinois Department of Transportation

Springfield, Illinois 62764

Contract No. 76973
MADISON & ST. CLAIR, IL & ST. LOUIS, MO Counties
Section DIST. 8 ITS 2006-2
Route FAI 55/70
Project ITS-417(104)
ITS Program Funds - District 8

PLEASE MARK THE APPROPRIATE BOX BELOW:

☐ A Bid Bond is included.

☐ A Cashier's Check or a Certified Check is included

Prepared by

Checked by F

(Printed by authority of the State of Illinois)

INSTRUCTIONS

ABOUT IDOT PROPOSALS: All proposals issued by IDOT are potential bidding proposals. Each proposal contains all Certifications and Affidavits, a Proposal Signature Sheet and a Proposal Bid Bond required for Prime Contractors to submit a bid after written **Authorization to Bid** has been issued by IDOT's Central Bureau of Construction.

WHO CAN BID?: Bids will be accepted from only those companies that request and receive written **Authorization to Bid** from IDOT's Central Bureau of Construction. To request authorization, a potential bidder must complete and submit Part B of the Request for Authorization to Bid/or Not For Bid Status form (BDE 124 INT) and submit an original Affidavit of Availability (BC 57).

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?: When a prospective prime bidder submits a "Request for Proposal Forms and Plans" he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued a **Proposal Denial and/or Authorization Form**, approved by the Central Bureau of Construction, that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Proposal Denial and/or Authorization Form** will indicate the reason for denial. If a contractor has requested to bid but has not received a **Proposal Denial and/or Authorization Form**, they should contact the Central Bureau of Construction in advance of the letting date.

WHAT MUST BE INCLUDED WHEN BIDS ARE SUBMITTED?: Bidders need not return the entire proposal when bids are submitted. That portion of the proposal that must be returned includes the following:

1. All documents from the Proposal Cover Sheet through the Proposal Bid Bond

2. Other special documentation and/or information that may be required by the contract special provisions

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

ABOUT SUBMITTING BIDS: It is recommended that bidders deliver bids in person to insure they arrive at the proper location prior to the time specified for the receipt of bids. Any bid received at the place of letting after the time specified will not be accepted.

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

Questions Regarding	Call
Prequalification and/or Authorization to Bid	217/782-3413
Preparation and submittal of bids	217/782-7806
Mailing of CD-ROMS	217/782-7806

RETURN WITH BID

Illinois Department of Transportation

PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

_____

Taxpayer Identification Number (Mandatory) _____

for the improvement identified and advertised for bids in the Invitation for Bids as:

Contract No. 76973
MADISON & ST. CLAIR, IL & ST. LOUIS, MO Counties
Section DIST. 8 ITS 2006-2
Project ITS-417(104)
Route FAI 55/70
ITS Program Funds - District 8

Installation of permanent communications devices along I-55/70 from east of IL Route 111 to the first pier of the Poplar Street Bridge in St. Louis, Missouri.

2. The undersigned bidder will furnish all labor, material and equipment to complete the above described project in a good and workmanlike manner as provided in the contract documents provided by the Department of Transportation. This proposal will become part of the contract and the terms and conditions contained in the contract documents shall govern performance and payments.

3. **ASSURANCE OF EXAMINATION AND INSPECTION/WAIVER.** The undersigned further declares that he/she has carefully examined the proposal, plans, specifications, form of contract and contract bond, and special provisions, and that he/she has inspected in detail the site of the proposed work, and that he/she has familiarized themselves with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this proposal he/she waives all right to plead any misunderstanding regarding the same.

4. **EXECUTION OF CONTRACT AND CONTRACT BOND.** The undersigned further agrees to execute a contract for this work and present the same to the department within fifteen (15) days after the contract has been mailed to him/her. The undersigned further agrees that he/she and his/her surety will execute and present within fifteen (15) days after the contract has been mailed to him/her contract bond satisfactory to and in the form prescribed by the Department of Transportation, in the penal sum of the full amount of the contract, guaranteeing the faithful performance of the work in accordance with the terms of the contract.

5. **PROPOSAL GUARANTY.** Accompanying this proposal is either a bid bond on the department form, executed by a corporate surety company satisfactory to the department, or a proposal guaranty check consisting of a bank cashier's check or a properly certified check for not less than 5 per cent of the amount bid or for the amount specified in the following schedule:

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

Bank cashier's checks or properly certified checks accompanying proposals shall be made payable to the Treasurer, State of Illinois, when the state is awarding authority; 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.

If a combination bid is submitted, the proposal guaranties which accompany the individual proposals making up the combination will be considered as also covering the combination bid.

The amount of the proposal guaranty check is _____ $( ). If this proposal is accepted and the undersigned shall fail to execute a contract bond as required herein, it is hereby agreed that the amount of the proposal guaranty shall become the property of the State of Illinois, and shall be considered as payment of damages due to delay and other causes suffered by the State because of the failure to execute said contract and contract bond; otherwise, the bid bond shall become void or the proposal guaranty check shall be returned to the undersigned.

Attach Cashier's Check or Certified Check Here

In the event that one proposal guaranty check is intended to cover two or more proposals, the amount must be equal to the sum of the proposal guaranties which would be required for each individual proposal. If the guaranty check is placed in another proposal, state below where it may be found.

The proposal guaranty check will be found in the proposal for:

Item _____

Section No. _____

County _____

Mark the proposal cover sheet as to the type of proposal guaranty submitted.

BD 354 (Rev. 11/2001)

6. **COMBINATION BIDS.** The undersigned further agrees that if awarded the contract for the sections contained in the following combination, he/she will perform the work in accordance with the requirements of each individual proposal comprising the combination bid specified in the schedule below, and that the combination bid shall be prorated against each section in proportion to the bid submitted for the same. If an error is found to exist in the gross sum bid for one or more of the individual sections included in a combination, the combination bid shall be corrected as provided in the specifications.

When a combination bid is submitted, the schedule below must be completed in each proposal comprising the combination.

If alternate bids are submitted for one or more of the sections comprising the combination, a combination bid must be submitted for each alternate.

Schedule of Combination Bids

Combination No.	Sections Included in Combination	Combination Bid Dollars	Cents

7. **SCHEDULE OF PRICES.** The undersigned bidder submits herewith, in accordance with the rules and instructions, a schedule of prices for the items of work for which bids are sought. The unit prices bid are in U.S. dollars and cents, and all extensions and summations have been made. The bidder understands that the quantities appearing in the bid schedule are approximate and are provided for the purpose of obtaining a gross sum for the comparison of bids. If there is an error in the extension of the unit prices, the unit prices shall govern. 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 contract. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased or omitted as provided elsewhere in the contract.

8. **CERTIFICATE OF AUTHORITY.** The undersigned bidder, if a business organized under the laws of another State, assures the Department that it will furnish a copy of its certificate of authority to do business in the State of Illinois with the return of the executed contract and bond. Failure to furnish the certificate within the time provided for execution of an awarded contract may be cause for cancellation of the award and forfeiture of the proposal guaranty to the State.

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 76973

State Job # - C-75-016-06
PPS NBR -
County Name - MADISON- ST CLAIR-
Code - 119 - 163 -
District - 8 - 8 -
Section Number - DIST 8 ITS 2006-2

Project Number ITS-041-7/104/

Route FAI 55/70

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0322227	CCTV CAMERA SYSTEM	EACH	3.000				
X0322343	LOCATE EX DRAIN STR	EACH	10.000				
X0322925	ELCBL C TRACER 14 1C	FOOT	32,620.500				
X0323228	F & I TRUSS DAMPER	EACH	1.000				
X0325066	2955 LAYER 2 SWITCH	EACH	7.000				
X0325073	MOD EX CONTR CAB TY B	EACH	4.000				
X0325075	CONDUIT ATT STR 4 FBR	FOOT	892.000				
X0325076	WIDE AREA NETWORK	L SUM	1.000				
X0325077	FIB OPT UTILIT MARKER	EACH	400.000				
X0325456	3750-12S LAY 3 SWITCH	EACH	6.000				
X0325457	BX GIR CONDUIT INSTAL	L SUM	1.000				
X0325458	CON AT STR 2.5 ALUM	FOOT	788.000				
X0325459	CONF DIG VID ENC/DEC	L SUM	1.000				
X0325460	CONT CAB T3 SPL (AC)	EACH	5.000				
X0325461	GLC-T SFP MODULE	EACH	5.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 76973

State Job # - C-75-016-06
PPS NBR -
County Name - MADISON- ST CLAIR-
Code - 119 - 163 -
District - 8 - 8 -
Section Number - DIST 8 ITS 2006-2

Project Number: ITS-041-7/104/
Route: FAI 55/70

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0325462	MEDIA CONVERTER	EACH	3.000				
X0325463	OSS BUTFLY TY I-F-A	FOOT	20.000				
X0325470	CON AT ST 3 ALUM	FOOT	415.000				
X0325471	MOD EX CONTR CAB TYA1	EACH	1.000				
X0325472	MOD EX CONTR CAB TYA4	EACH	2.000				
X0325473	MOD EX CONTR CAB TY C	EACH	6.000				
X0325474	MOD EX CONTR CAB TY D	EACH	1.000				
X0325475	MOD EX CONTR CAB TY E	EACH	1.000				
X0325476	RADAR VEH DETECT SYST	EACH	5.000				
X0325478	RELOCATE CONTR CABINT	EACH	1.000				
X0325479	RELO EX ITS EQUIP TYA	EACH	1.000				
X0325480	RELO EX ITS EQUIP TYB	EACH	1.000				
X0325481	RELO EX ITS EQUIP TYC	EACH	1.000				
X0325482	REM EXIST ITS EQUIPMT	EACH	5.000				
X0325483	SFP-GE-L SFP MODULE	EACH	12.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 76973

State Job # - C-75-016-06
PPS NBR -
County Name - MADISON- ST CLAIR-
Code - 119 - 163 -
District - 8 - 8 -
Section Number - DIST 8 ITS 2006-2

Project Number: ITS-041-7/104/
Route: FAI 55/70

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0325484	SFP-GE-Z SFP MODULE	EACH	3.000				
X0325485	TR MTD LED DYN MSG SN	EACH	1.000				
X0325486	VIDEO VEH DET SYS P M	EACH	1.000				
X0325487	WIRED COMM DATA CONVT	EACH	6.000				
X0325523	500G LAYER 2 SWITCH	EACH	5.000				
X0325524	GLC-FE-100 FX SFP MOD	EACH	1.000				
X0325525	GLC-FE-100 LX SFP MOD	EACH	15.000				
X7010600	TC-PROT 701406 SPL	L SUM	1.000				
X8100065	CON T 4 PVC TY C	FOOT	29,384.000				
X8102020	CON P 4 PVC SCHED 80	FOOT	1,755.000				
X8110128	CON AT ST 4 PVC TY C	FOOT	5,124.000				
X8305420	LP S 45 W/CAM LOW	EACH	3.000				
X8360100	LIGHT POLE FDN 28D	FOOT	30.000				
X8710075	FO CAB C 72 SM FO	FOOT	36,265.000				
X8730050	ELCBL C SERV 2 3C COP	FOOT	2,963.500				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 76973

State Job # - C-75-016-06
PPS NBR -
County Name - MADISON- ST CLAIR-
Code - 119 - 163 -
District - 8 - 8 -
Section Number - DIST 8 ITS 2006-2

Project Number: ITS-041-7/104/
Route: FAI 55/70

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X8801100	SH P LED 1F 1S PM	EACH	1.000				
Z0048665	RR PROT LIABILITY INS	L SUM	1.000				
20101400	NITROGEN FERT NUTR	POUND	180.000				
20101500	PHOSPHORUS FERT NUTR	POUND	180.000				
20101600	POTASSIUM FERT NUTR	POUND	180.000				
25000115	SEEDING CL 1B	ACRE	2.000				
25000210	SEEDING CL 2A	ACRE	2.000				
25100105	MULCH METHOD 1	ACRE	4.000				
28000250	TEMP EROS CONTR SEED	POUND	400.000				
28000500	INLET & PIPE PROTECT	EACH	10.000				
66410400	CH LK FENCE REM & RE	FOOT	350.000				
67000400	ENGR FIELD OFFICE A	CAL MO	10.000				
67100100	MOBILIZATION	L SUM	1.000				
70100420	TRAF CONT-PROT 701411	EACH	2.000				
70100700	TRAF CONT-PROT 701406	L SUM	1.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 76973

State Job # - C-75-016-06
PPS NBR -
County Name - MADISON- ST CLAIR-
Code - 119 - 163 -
District - 8 - 8 -
Section Number - DIST 8 ITS 2006-2

Project Number: ITS-041-7/104/
Route: FAI 55/70

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
70102620	TR CONT & PROT 701501	L SUM	1.000				
72000305	SIGN PANEL T3 SPL	SQ FT	66.000				
72700100	STR STL SIN SUP BA	POUND	156.000				
73400100	CONC FOUNDATION	CU YD	1.400				
73400200	DRILL SHAFT CONC FDN	CU YD	6.000				
80300100	LOCATE UNDERGR CABLE	FOOT	2,791.000				
80500100	SERV INSTALL TY A	EACH	6.000				
80801500	W POLE 25 CL 5	EACH	6.000				
81012600	CON T 2 PVC	FOOT	6.000				
81012800	CON T 3 PVC	FOOT	5,736.000				
81018700	CON P 3 GALVS	FOOT	599.000				
81100590	CON AT ST 2 ALUM	FOOT	160.000				
81102700	CON AT ST 2 1/2 PVC	FOOT	115.000				
81300835	JUN BX SS AS 18X18X10	EACH	37.000				
81400400	CONC HANDHOLE	EACH	56.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 76973

State Job # - C-75-016-06
PPS NBR -
County Name - MADISON- ST CLAIR-
Code - 119 - 163 -
District - 8 - 8 -
Section Number - DIST 8 ITS 2006-2

Project Number: ITS-041-7/104/
Route: FAI 55/70

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
81400600	CONC DBL HANDHOLE	EACH	8.000				
81500200	TR & BKFIL F ELECT WK	FOOT	35,241.000				
83034100	LT P S 30MH TEN MT	EACH	2.000				
85800300	FL CONT W/O CAB	EACH	1.000				
86300305	CONT CAB TYPE III SPL	EACH	3.000				
87000105	ECA C EPRTC 2C 10#10G	FOOT	1,251.500				
87100110	FO CAB C 62.5/125 6F	FOOT	6,630.000				
87301715	ELCBL C COMM 18 6PR	FOOT	5,335.000				
87301815	ELCBL C SERV 6 3C	FOOT	1,300.000				
87502680	TS POST A 14	EACH	1.000				
87800210	CONC FDN TY D SPL	FOOT	24.500				
87900100	DRILL EX FOUNDATION	EACH	10.000				
87900200	DRILL EX HANDHOLE	EACH	9.000				
89502215	MOD EX CONTR FDN	EACH	2.000				
89502300	REM ELCBL FR CON	FOOT	3,750.000				

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - 76973

State Job # - C-75-016-06
PPS NBR -
County Name - MADISON- ST CLAIR-
Code - 119 - 163 -
District - 8 - 8 -
Section Number - DIST 8 ITS 2006-2

Project Number: ITS-041-7/104/
Route: FAI 55/70

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
89502350	REM & RE ELCBL FR CON	FOOT	5,335.000				

CONTRACT NUMBER **76973**

THIS IS THE TOTAL BID **$** _____

NOTES:

1. **Each PAY ITEM should have a UNIT PRICE and a TOTAL PRICE.**
2. **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.**
3. **If a UNIT PRICE is omitted, the TOTAL PRICE will be divided by the QUANTITY in order to establish a UNIT PRICE.**
4. **A bid may be declared UNACCEPTABLE if neither a unit price nor a total price is shown.**

RETURN WITH BID

STATE REQUIRED ETHICAL STANDARDS GOVERNING CONTRACT PROCUREMENT: ASSURANCES, CERTIFICATIONS AND DISCLOSURES

I. GENERAL

A. Article 50 of the Illinois Procurement Code establishes the duty of all State chief procurement officers, State purchasing officers, and their designees to maximize the value of the expenditure of public moneys in procuring goods, services, and contracts for the State of Illinois and to act in a manner that maintains the integrity and public trust of State government. In discharging this duty, they are charged by law to use all available information, reasonable efforts, and reasonable actions to protect, safeguard, and maintain the procurement process of the State of Illinois.

B. In order to comply with the provisions of Article 50 and to carry out the duty established therein, all bidders are to adhere to ethical standards established for the procurement process, and to make such assurances, disclosures and certifications required by law. By execution of the Proposal Signature Sheet, the bidder indicates that each of the mandated assurances has been read and understood, that each certification is made and understood, and that each disclosure requirement has been understood and completed.

C. In addition to all other remedies provided by law, failure to comply with any assurance, failure to make any disclosure or the making of a false certification shall be grounds for termination of the contract and the suspension or debarment of the bidder.

II. ASSURANCES

A. The assurances hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous assurance, and the surety providing the performance bond shall be responsible for the completion of the contract.

B. Felons

1. The Illinois Procurement Code provides:

Section 50-10. Felons. Unless otherwise provided, no person or business convicted of a felony shall do business with the State of Illinois or any state agency from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-10.

C. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

(a) Prohibition. It is unlawful for any person holding an elective office in this State, holding a seat in the General Assembly, or appointed to or employed in any of the offices or agencies of state government and who receives compensation for such employment in excess of 60% of the salary of the Governor of the State of Illinois, or who is an officer or employee of the Capital Development Board or the Illinois Toll Highway Authority, or who is the spouse or minor child of any such person to have or acquire any contract, or any direct pecuniary interest in any contract therein, whether for stationery, printing, paper, or any services, materials, or supplies, that will be wholly or partially satisfied by the payment of funds appropriated by the General Assembly of the State of Illinois or in any contract of the Capital Development Board or the Illinois Toll Highway authority.

(b) Interests. It is unlawful for any firm, partnership, association or corporation, in which any person listed in subsection (a) is entitled to receive (i) more than 7 1/2% of the total distributable income or (ii) an amount in excess of the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(c) Combined interests. It is unlawful for any firm, partnership, association, or corporation, in which any person listed in subsection (a) together with his or her spouse or minor children is entitled to receive (i) more than 15%, in the aggregate, of the total distributable income or (ii) an amount in excess of 2 times the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(d) Securities. Nothing in this Section invalidates the provisions of any bond or other security previously offered or to be offered for sale or sold by or for the State of Illinois.

(e) Prior interests. This Section does not affect the validity of any contract made between the State and an officer or employee of the State or member of the General Assembly, his or her spouse, minor child or any combination of those persons if that contract was in existence before his or her election or employment as an officer, member, or employee. The contract is voidable, however, if it cannot be completed within 365 days after the officer, member, or employee takes office or is employed.

The current salary of the Governor is $150,700.00. Sixty percent of the salary is $90,420.00.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-13, or that an effective exemption has been issued by the Board of Ethics to any individual subject to the Section 50-13 prohibitions pursuant to the provisions of Section 50-20 of the Code and Executive Order Number 3 (1998). Information concerning the exemption process is available from the Department upon request.

D. Negotiations

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

(a) It is unlawful for any person employed in or on a continual contractual relationship with any of the offices or agencies of State government to participate in contract negotiations on behalf of that office or agency with any firm, partnership, association, or corporation with whom that person has a contract for future employment or is negotiating concerning possible future employment.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-15, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

E. Inducements

1. The Illinois Procurement Code provides:

Section 50-25. Inducement. Any person who offers or pays any money or other valuable thing to any person to induce him or her not to bid for a State contract or as recompense for not having bid on a State contract is guilty of a Class 4 felony. Any person who accepts any money or other valuable thing for not bidding for a State contract or who withholds a bid in consideration of the promise for the payment of money or other valuable thing is guilty of a Class 4 felony.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-25, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

F. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

Section 50-30. Revolving door prohibition. Chief procurement officers, associate procurement officers, State purchasing officers, their designees whose principal duties are directly related to State procurement, and executive officers confirmed by the Senate are expressly prohibited for a period of 2 years after terminating an affected position from engaging in any procurement activity relating to the State agency most recently employing them in an affected position for a period of at least 6 months. The prohibition includes, but is not limited to: lobbying the procurement process; specifying; bidding; proposing bid, proposal, or contract documents; on their own behalf or on behalf of any firm, partnership, association, or corporation. This Section applies only to persons who terminate an affected position on or after January 15, 1999.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-30, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

G. Reporting Anticompetitive Practices

1. The Illinois Procurement Code provides:

Section 50-40. Reporting anticompetitive practices. When, for any reason, any vendor, bidder, contractor, chief procurement officer, State purchasing officer, designee, elected official, or State employee suspects collusion or other anticompetitive practice among any bidders, offerors, contractors, proposers, or employees of the State, a notice of the relevant facts shall be transmitted to the Attorney General and the chief procurement officer.

2. The bidder assures the Department that it has not failed to report any relevant facts concerning the practices addressed in Section 50-40 which may involve the contract for which the bid is submitted.

H. Confidentiality

1. The Illinois Procurement Code provides:

Section 50-45. Confidentiality. Any chief procurement officer, State purchasing officer, designee, or executive officer who willfully uses or allows the use of specifications, competitive bid documents, proprietary competitive information, proposals, contracts, or selection information to compromise the fairness or integrity of the procurement, bidding, or contract process shall be subject to immediate dismissal, regardless of the Personnel code, any contract, or any collective bargaining agreement, and may in addition be subject to criminal prosecution.

2. The bidder assures the Department that it has no knowledge of any fact relevant to the practices addressed in Section 50-45 which may involve the contract for which the bid is submitted.

RETURN WITH BID

I. Insider Information

1. The Illinois Procurement Act provides:

Section 50-50. Insider information. It is unlawful for any current or former elected or appointed State official or State employee to knowingly use confidential information available only by virtue of that office or employment for actual or anticipated gain for themselves or another person.

2. The bidder assures the Department that it has no knowledge of any facts relevant to the practices addressed in Section 50-50 which may involve the contract for which the bid is submitted.

III. CERTIFICATIONS

A. The certifications hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous certification, and the surety providing the performance bond shall be responsible for completion of the contract.

B. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

(a) Prohibition. No person or business shall be awarded a contract or subcontract under this Code who:

(1) has been convicted under the laws of Illinois or any other state of bribery or attempting to bribe an officer or employee of the State of Illinois or any other state in that officer's or employee's official capacity; or

(2) has made an admission of guilt of that conduct that is a matter of record but has not been prosecuted for that conduct.

(b) Businesses. No business shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

(1) the business has been finally adjudicated not guilty; or

(2) the business demonstrates to the governmental entity with which it seeks to contract, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 1961.

(c) Conduct on behalf of business. For purposes of this Section, when an official, agent, or employee of a business committed the bribery or attempted bribery on behalf of the business and in accordance with the direction or authorization of a responsible official of the business, the business shall be chargeable with the conduct.

(d) Certification. Every bid submitted to and contract executed by the State shall contain a certification by the contractor that the contractor is not barred from being awarded a contract or subcontract under this Section. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

2. The bidder certifies that it is not barred from being awarded a contract under Section 50.5.

C. Educational Loan

1. Section 3 of the Educational Loan Default Act provides:

§ 3. No State agency shall contract with an individual for goods or services if that individual is in default, as defined in Section 2 of this Act, on an educational loan. Any contract used by any State agency shall include a statement certifying that the individual is not in default on an educational loan as provided in this Section.

2. The bidder, if an individual as opposed to a corporation, partnership or other form of business organization, certifies that the bidder is not in default on an educational loan as provided in Section 3 of the Act.

D. Bid-Rigging/Bid Rotating

1. Section 33E-11 of the Criminal Code of 1961 provides:

§ 33E-11. (a) Every bid submitted to and public contract executed pursuant to such bid by the State or a unit of local government shall contain a certification by the prime contractor that the prime contractor is not barred from contracting with any unit of State or local government as a result of a violation of either Section 33E-3 or 33E-4 of this Article. The State and units of local government shall provide the appropriate forms for such certification.

(b) A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

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

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

2. The bidder certifies that it is not barred from contracting with the Department by reason of a violation of either Section 33E-3 or Section 33E-4.

E. International Anti-Boycott

1. Section 5 of the International Anti-Boycott Certification Act provides:

§ 5. State contracts. Every contract entered into by the State of Illinois for the manufacture, furnishing, or purchasing of supplies, material, or equipment or for the furnishing of work, labor, or services, in an amount exceeding the threshold for small purchases according to the purchasing laws of this State or $10,000.00, whichever is less, shall contain certification, as a material condition of the contract, by which the contractor agrees that neither the contractor nor any substantially-owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the U.S. Export Administration Act of 1979 or the regulations of the U.S. Department of Commerce promulgated under that Act.

2. The bidder makes the certification set forth in Section 5 of the Act.

F. Drug Free Workplace

1. The Illinois “Drug Free Workplace Act” applies to this contract and it is necessary to comply with the provisions of the “Act” if the contractor is a corporation, partnership, or other entity (including a sole proprietorship) which has 25 or more employees.

2. The bidder certifies that if awarded a contract in excess of $5,000 it will provide a drug free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance, including cannabis, is prohibited in the contractor’s workplace; specifying the actions that will be taken against employees for violations of such prohibition; and notifying the employee that, as a condition of employment on such contract, the employee shall abide by the terms of the statement, and notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.

(b) Establishing a drug free awareness program to inform employees about the dangers of drug abuse in the workplace; the contractor’s policy of maintaining a drug free workplace; any available drug counseling, rehabilitation, and employee assistance programs; and the penalties that may be imposed upon employees for drug violations.

(c) Providing a copy of the statement required by subparagraph (1) to each employee engaged in the performance of the contract and to post the statement in a prominent place in the workplace.

(d) Notifying the Department within ten (10) days after receiving notice from an employee or otherwise receiving actual notice of the conviction of an employee for a violation of any criminal drug statute occurring in the workplace.

(e) Imposing or requiring, within 30 days after receiving notice from an employee of a conviction or actual notice of such a conviction, an appropriate personnel action, up to and including termination, or the satisfactory participation in a drug abuse assistance or rehabilitation program approved by a federal, state or local health, law enforcement or other appropriate agency.

(f) Assisting employees in selecting a course of action in the event drug counseling, treatment, and rehabilitation is required and indicating that a trained referral team is in place.

(g) Making a good faith effort to continue to maintain a drug free workplace through implementation of the actions and efforts stated in this certification.

G. Debt Delinquency

1. The Illinois Procurement Code provides:

Section 50-11 and 50-12. Debt Delinquency.

The contractor or bidder certifies that it, or any affiliate, is not barred from being awarded a contract under 30 ILCS 500. Section 50-11 prohibits a person from entering into a contract with a State agency if it knows or should know that it, or any affiliate, is delinquent in the payment of any debt to the State as defined by the Debt Collection Board. Section 50-12 prohibits a person from entering into a contract with a State agency if it, or any affiliate, has failed to collect and remit Illinois Use Tax on all sales of tangible personal property into the State of Illinois in accordance with the provisions of the Illinois Use Tax Act. The contractor further acknowledges that the contracting State agency may declare the contract void if this certification is false or if the contractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

H. Sarbanes-Oxley Act of 2002

1. The Illinois Procurement Code provides:

Section 50-60(c).

The contractor certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 for a period of five years prior to the date of the bid or contract. The contractor acknowledges that the contracting agency shall declare the contract void if this certification is false.

I. ADDENDA

The contractor or bidder certifies that all relevant addenda have been incorporated in to this contract. Failure to do so may cause the bid to be declared unacceptable.

J. Section 42 of the Environmental Protection Act

The contractor certifies in accordance with 30 ILCS 500/50-12 that the bidder or contractor is not barred from being awarded a contract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency by a person or business found by a court or the Pollution Control Board to have committed a willful or knowing violation of Section 42 of the Environmental Protection Act for a period of five years from the date of the order. The contractor acknowledges that the contracting agency may declare the contract void if this certification is false.

K. Apprenticeship and Training Certification (Does not apply to federal aid projects)

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 approval 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 contract, 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 as reported on the Construction Employee Workforce Projection (Form BC-1256) and returned with the bid is accounted for and listed.**

NA - FEDERAL

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.

TO BE RETURNED WITH BID

IV. DISCLOSURES

A. The disclosures hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous disclosure, and the surety providing the performance bond shall be responsible for completion of the contract.

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Illinois Procurement Code provides that all bids of more than $10,000 shall be accompanied by disclosure of the financial interests of the bidder. This disclosed information for the successful bidder, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

In addition, all disclosures shall indicate any other current or pending contracts, proposals, leases, or other ongoing procurement relationships the bidding entity has with any other unit of state government and shall clearly identify the unit and the contract, proposal, lease, or other relationship.

2. Disclosure Forms. Disclosure Form A is attached for use concerning the individuals meeting the above ownership or distributive share requirements. Subject individuals should be covered each by one form. In addition, a second form (Disclosure Form B) provides for the disclosure of current or pending procurement relationships with other (non-IDOT) state agencies. **The forms must be included with each bid or incorporated by reference.**

C. Disclosure Form Instructions

Form A: For bidders that have previously submitted the information requested in Form A

The Department has retained the Form A disclosures submitted by all bidders responding to these requirements for the April 24, 1998 or any subsequent letting conducted by the Department. The bidder has the option of submitting the information again or the bidder may sign the following certification statement indicating that the information previously submitted by the bidder is, as of the date of signature, current and accurate. The Certification must be signed and dated by a person who is authorized to execute contracts for the bidding company. Before signing this certification, the bidder should carefully review its prior submissions to ensure the Certification is correct. If the Bidder signs the Certification, the Bidder should proceed to Form B instructions.

CERTIFICATION STATEMENT

I have determined that the Form A disclosure information previously submitted is current and accurate, and all forms are hereby incorporated by reference in this bid. Any necessary additional forms or amendments to previously submitted forms are attached to this bid.

_____
(Bidding Company)

_____ _____
Name of Authorized Representative (type or print) Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative Date

Form A: For bidders who have NOT previously submitted the information requested in Form A

If the bidder is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. If a bidder is not subject to Federal 10K reporting, the bidder must determine if any individuals are required by law to complete a financial disclosure form. To do this, the bidder should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the NOT APPLICABLE STATEMENT on the second page of Form A must be signed and dated by a person that is authorized to execute contracts for the bidding company. Note: These questions are for assistance only and are not required to be completed.

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES ___ NO___
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than $90,420.00? YES ___ NO___
3. Does anyone in your organization receive more than $90,420.00 of the bidding entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.) YES ___ NO __
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than $90,420.00? YES ___ NO __

   (Note: Only one set of forms needs to be completed per person per bid even if a specific individual would require a yes answer to more than one question.)

A "YES" answer to any of these questions requires the completion of Form A. The bidder must determine each individual in the bidding entity or the bidding entity's parent company that would cause the questions to be answered "Yes". Each form must be signed and dated by a person that is authorized to execute contracts for your organization. **Photocopied or stamped signatures are not acceptable**. The person signing can be, but does not have to be, the person for which the form is being completed. The bidder is responsible for the accuracy of any information provided.

If the answer to each of the above questions is "NO", then the NOT APPLICABLE STATEMENT on page 2 of Form A must be signed and dated by a person that is authorized to execute contracts for your company.

Form B: Identifying Other Contracts & Procurement Related Information Disclosure Form B must be completed for each bid submitted by the bidding entity. It must be signed by an individual who is authorized to execute contracts for the bidding entity. *Note: Signing the NOT APPLICABLE STATEMENT on Form A does not allow the bidder to ignore Form B. Form B must be completed, signed and dated or the bidder may be considered nonresponsive and the bid will not be accepted.*

The Bidder shall identify, by checking Yes or No on Form B, whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other (non-IDOT) State of Illinois agency. If "No" is checked, the bidder only needs to complete the signature box on the bottom of Form B. If "Yes" is checked, the bidder must do one of the following:

Option I: If the bidder did not submit an Affidavit of Availability to obtain authorization to bid, the bidder must list all non-IDOT State of Illinois agency pending contracts, leases, bids, proposals, and other ongoing procurement relationships. These items may be listed on Form B or on an attached sheet(s). Do not include IDOT contracts. Contracts with cities, counties, villages, etc. are not considered State of Illinois agency contracts and are not to be included. Contracts with other State of Illinois agencies such as the Department of Natural Resources or the Capital Development Board must be included. Bidders who submit Affidavits of Availability are suggested to use Option II.

Option II: If the bidder is required and has submitted an Affidavit of Availability in order to obtain authorization to bid, the bidder may write or type "See Affidavit of Availability" which indicates that the Affidavit of Availability is incorporated by reference and includes all non-IDOT State of Illinois agency pending contracts, leases, bids, proposals, and other ongoing procurement relationships. For any contracts that are not covered by the Affidavit of Availability, the bidder must identify them on Form B or on an attached sheet(s). These might be such things as leases.

D. Bidders Submitting More Than One Bid

Bidders submitting multiple bids may submit one set of forms consisting of all required Form A disclosures and one Form B for use with all bids. Please indicate in the space provided below the bid item that contains the original disclosure forms and the bid items which incorporate the forms by reference.

- The bid submitted for letting item _____ contains the Form A disclosures or Certification Statement and the Form B disclosures. The following letting items incorporate the said forms by reference:

_____

_____

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ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A
Financial Information & Potential Conflicts of Interest Disclosure

Contractor Name		
Legal Address		
City, State, Zip		
Telephone Number	Email Address	Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Code (30 ILCS 500). Vendors desiring to enter into a contract with the State of Illinois must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for bids in excess of $10,000, and for all open-ended contracts. **A publicly traded company may submit a 10K disclosure (or equivalent if applicable) in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.**

DISCLOSURE OF FINANCIAL INFORMATION

1. Disclosure of Financial Information. The individual named below has an interest in the BIDDER (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than $90,420.00 (60% of the Governor's salary as of 7/1/01). **(Make copies of this form as necessary and attach a separate Disclosure Form A for each individual meeting these requirements)**

FOR INDIVIDUAL (type or print information)

NAME: _____

ADDRESS _____

_____

Type of ownership/distributable income share:

stock _____ sole proprietorship _____ Partnership _____ other: (explain on separate sheet):

% or $ value of ownership/distributable income share: _____

2. Disclosure of Potential Conflicts of Interest. Check "Yes" or "No" to indicate which, if any, of the following potential conflict of interest relationships apply. If the answer to any question is "Yes", please attach additional pages and describe.

(a) State employment, currently or in the previous 3 years, including contractual employment of services. Yes ___ No __

If your answer is yes, please answer each of the following questions.

1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois Toll Highway Authority? Yes ___ No __

2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds $90,420.00, (60% of the Governor's salary as of 7/1/01) provide the name the State agency for which you are employed and your annual salary. _____
_____

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds $90,420.00, (60% of the Governor's salary as of 7/1/01) are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of the salary of the Governor? Yes ___ No __

4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds $90,420.00, (60% of the Governor's salary as of 7/1/01) are you and your spouse or minor children entitled to receive (i) more than 15% in aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor? Yes ___ No __

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment for services in the previous 2 years.

Yes ___No __

If your answer is yes, please answer each of the following questions.

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois Toll Highway Authority? Yes ___No __

2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds $90,420.00, (60% of the Governor's salary as of 7/1/01) provide the name of the spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. _____
_____

3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds $90,420.00, (60% of the salary of the Governor as of 7/1/01) are you entitled to receive (i) more than 71/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of the salary of the Governor? Yes ___ No __

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds $90,420.00, (60% of the Governor's salary as of 7/1/01) are you and your spouse or any minor children entitled to receive (i) more than 15% in the aggregate of the total distributable income from your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor?

Yes ___ No __

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years. Yes ___No __

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___No __

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United State of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statues of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years. Yes ___No __

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___No __

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government. Yes ___No __

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(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter. Yes ___ No __

(i) Compensated employment, currently or in the previous 3 years, by any registered election or reelection committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections.
Yes ___ No __

(j) Relationship to anyone; spouse, father, mother, son, or daughter; who was a compensated employee in the last 2 years by any registered election or re-election committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections.
Yes ___ No __

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page.

Completed by: _____
Name of Authorized Representative (type or print)

Completed by: _____
Title of Authorized Representative (type or print)

Completed by: _____ _____
Signature of Individual or Authorized Representative — Date

NOT APPLICABLE STATEMENT

I have determined that no individuals associated with this organization meet the criteria that would require the completion of this Form A.

This Disclosure Form A is submitted on behalf of the CONTRACTOR listed on the previous page.

_____
Name of Authorized Representative (type or print)

_____
Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative — Date

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ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Other Contracts & Procurement Related Information Disclosure

Contractor Name		
Legal Address		
City, State, Zip		
Telephone Number	Email Address	Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Act (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for bids in excess of $10,000, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

1. Identifying Other Contracts & Procurement Related Information. The BIDDER shall identify whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency: Yes ___ No __
If "No" is checked, the bidder only needs to complete the signature box on the bottom of this page.

2. If "Yes" is checked. Identify each such relationship by showing State of Illinois agency name and other descriptive information such as bid or project number (attach additional pages as necessary). SEE DISCLOSURE FORM INSTRUCTIONS:

THE FOLLOWING STATEMENT MUST BE SIGNED

_____
Name of Authorized Representative (type or print)

_____
Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative Date

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SPECIAL NOTICE TO CONTRACTORS

The following requirements of the Illinois Department of Human Rights' Rules and Regulations are applicable to bidders on all construction contracts advertised by the Illinois Department of Transportation:

CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION

(a) All bidders on construction contracts shall complete and submit, along with and as part of their bids, a Bidder's Employee Utilization Form (Form BC-1256) setting forth a projection and breakdown of the total workforce intended to be hired and/or allocated to such contract work by the bidder including a projection of minority and female employee utilization in all job classifications on the contract project.

(b) The Department of Transportation shall review the Employee Utilization Form, and workforce projections contained therein, of the contract awardee to determine if such projections reflect an underutilization of minority persons and/or women in any job classification in accordance with the Equal Employment Opportunity Clause and Section 7.2 of the Illinois Department of Human Rights' Rules and Regulations for Public Contracts adopted as amended on September 17, 1980. If it is determined that the contract awardee's projections reflect an underutilization of minority persons and/or women in any job classification, it shall be advised in writing of the manner in which it is underutilizing and such awardee shall be considered to be in breach of the contract unless, prior to commencement of work on the contract project, it submits revised satisfactory projections or an acceptable written affirmative action plan to correct such underutilization including a specific timetable geared to the completion stages of the contract.

(c) The Department of Transportation shall provide to the Department of Human Rights a copy of the contract awardee's Employee Utilization Form, a copy of any required written affirmative action plan, and any written correspondence related thereto. The Department of Human Rights may review and revise any action taken by the Department of Transportation with respect to these requirements.

RETURN WITH BID

Illinois Department of Transportation

Contract No. 76973
MADISON & ST. CLAIR, IL & ST. LOUIS, MO Counties
Section DIST. 8 ITS 2006-2
Project ITS-417(104)
Route FAI 55/70
ITS Program Funds - District 8

PART I. IDENTIFICATION

Dept. Human Rights # _____ Duration of Project: _____

Name of Bidder: _____

PART II. WORKFORCE PROJECTION

A. The undersigned bidder has analyzed minority group and female populations, unemployment rates and availability of workers for the location in which this contract work is to be performed, and for the locations from which the bidder recruits employees, and hereby submits the following workforce projection including a projection for minority and female employee utilization in all job categories in the workforce to be allocated to this contract:

TABLE A

TOTAL Workforce Projection for Contract													TABLE B: CURRENT EMPLOYEES TO BE ASSIGNED TO CONTRACT			
			MINORITY EMPLOYEES						TRAINEES				TOTAL EMPLOYEES		MINORITY EMPLOYEES	
JOB CATEGORIES	TOTAL EMPLOYEES		BLACK		HISPANIC		*OTHER MINOR.		APPREN-TICES		ON THE JOB TRAINEES					
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
OFFICIALS (MANAGERS)																
SUPERVISORS																
FOREMEN																
CLERICAL																
EQUIPMENT OPERATORS																
MECHANICS																
TRUCK DRIVERS																
IRONWORKERS																
CARPENTERS																
CEMENT MASONS																
ELECTRICIANS																
PIPEFITTERS, PLUMBERS																
PAINTERS																
LABORERS, SEMI-SKILLED																
LABORERS, UNSKILLED																
TOTAL																

TABLE C

TOTAL Training Projection for Contract								
EMPLOYEES IN TRAINING	TOTAL EMPLOYEES		BLACK		HISPANIC		*OTHER MINOR.	
	M	F	M	F	M	F	M	F
APPRENTICES								
ON THE JOB TRAINEES								

FOR DEPARTMENT USE ONLY

*Other minorities are defined as Asians (A) or Native Americans (N).

Please specify race of each employee shown in Other Minorities column.

Note: See instructions on the next page

PART II. WORKFORCE PROJECTION - continued

B. Included in "Total Employees" under Table A is the total number of **new hires** that would be employed in the event the undersigned bidder is awarded this contract.

The undersigned bidder projects that: (number) _____ new hires would be recruited from the area in which the contract project is located; and/or (number) _____ new hires would be recruited from the area in which the bidder's principal office or base of operation is located.

C. Included in "Total Employees" under Table A is a projection of numbers of persons to be employed directly by the undersigned bidder as well as a projection of numbers of persons to be employed by subcontractors.

The undersigned bidder estimates that (number) _____ persons will be directly employed by the prime contractor and that (number) _____ persons will be employed by subcontractors.

PART III. AFFIRMATIVE ACTION PLAN

A. The undersigned bidder understands and agrees that in the event the foregoing minority and female employee utilization projection included under **PART II** is determined to be an underutilization of minority persons or women in any job category, and in the event that the undersigned bidder is awarded this contract, he/she will, prior to commencement of work, develop and submit a written Affirmative Action Plan including a specific timetable (geared to the completion stages of the contract) whereby deficiencies in minority and/or female employee utilization are corrected. Such Affirmative Action Plan will be subject to approval by the contracting agency and the **Department of Human Rights**.

B. The undersigned bidder understands and agrees that the minority and female employee utilization projection submitted herein, and the goals and timetable included under an Affirmative Action Plan if required, are deemed to be part of the contract specifications.

Company _____ Telephone Number _____

_____

Address _____

NOTICE REGARDING SIGNATURE

The Bidder's signature on the Proposal Signature Sheet will constitute the signing of this form. The following signature block needs to be completed only if revisions are required.

Signature: _____ Title: _____ Date: _____

Instructions: All tables must include subcontractor personnel in addition to prime contractor personnel.

Table A - Include both the number of employees that would be hired to perform the contract work and the total number currently employed (Table B) that will be allocated to contract work, and include all apprentices and on-the-job trainees. The "Total Employees" column should include all employees including all minorities, apprentices and on-the-job trainees to be employed on the contract work.

Table B - Include all employees currently employed that will be allocated to the contract work including any apprentices and on-the-job trainees currently employed.

Table C - Indicate the racial breakdown of the total apprentices and on-the-job trainees shown in Table A.

RETURN WITH BID

ADDITIONAL FEDERAL REQUIREMENTS

In addition to the Required Contract Provisions for Federal-Aid Construction Contracts (FHWA 1273), all bidders make the following certifications.

A. By the execution of this proposal, the signing bidder certifies that the bidding entity has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid. This statement made by the undersigned bidder is true and correct under penalty of perjury under the laws of the United States.

B. CERTIFICATION, EQUAL EMPLOYMENT OPPORTUNITY:

1. Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause. YES _____ NO _____

2. If answer to #1 is yes, have you filed with the Joint Reporting Committee, the Director of OFCC, any Federal agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements of those organizations? YES _____ NO _____

RETURN WITH BID

Contract No. 76973
MADISON & ST. CLAIR, IL & ST. LOUIS, MO Counties
Section DIST. 8 ITS 2006-2
Project ITS-417(104)
Route FAI 55/70
ITS Program Funds - District 8

PROPOSAL SIGNATURE SHEET

The undersigned bidder hereby makes and submits this bid on the subject Proposal, thereby assuring the Department that all requirements of the Invitation for Bids and rules of the Department have been met, that there is no misunderstanding of the requirements of paragraph 3 of this Proposal, and that the contract will be executed in accordance with the rules of the Department if an award is made on this bid.

Firm Name _____

(IF AN INDIVIDUAL) Signature of Owner _____

Business Address _____

_____

Firm Name _____

By _____

(IF A CO-PARTNERSHIP) Business Address _____

_____

Name and Address of All Members of the Firm:

_____ _____

Corporate Name _____

By _____
Signature of Authorized Representative

(IF A CORPORATION)

_____
Typed or printed name and title of Authorized Representative

Attest _____
Signature

(IF A JOINT VENTURE, USE THIS SECTION FOR THE MANAGING PARTY AND THE SECOND PARTY SHOULD SIGN BELOW) Business Address _____

Corporate Name _____

By _____
Signature of Authorized Representative

(IF A JOINT VENTURE)

_____
Typed or printed name and title of Authorized Representative

Attest _____
Signature

Business Address _____

_____

If more than two parties are in the joint venture, please attach an additional signature sheet.

RETURN WITH BID

Illinois Department of Transportation

Division of Highways
Proposal Bid Bond
(Effective November 1, 1992)

Item No. _____
Letting Date _____

KNOW ALL MEN BY THESE PRESENTS, That We _____

_____

as PRINCIPAL, and _____

_____ as SURETY, are held jointly, severally and firmly bound unto the STATE OF ILLINOIS in the penal sum of 5 percent 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, whichever is the lesser sum, well and truly to be paid unto said STATE OF ILLINOIS, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH, That Whereas, the PRINCIPAL has submitted a bid proposal to the STATE OF ILLINOIS, acting through the Department of Transportation, for the improvement designated by the Transportation Bulletin Item Number and Letting Date indicated above.

NOW, THEREFORE, if the Department shall accept the bid proposal of the PRINCIPAL; and if the PRINCIPAL shall, within the time and as specified in the bidding and contract documents, submit a DBE Utilization Plan that is accepted and approved by the Department; and if, after award by the Department, the PRINCIPAL shall enter into a contract in accordance with the terms of the bidding and contract documents including evidence of the required insurance coverages and providing such bond as specified with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof; or if, in the event of the failure of the PRINCIPAL to make the required DBE submission or to enter into such contract and to give the specified bond, the PRINCIPAL pays to the Department the difference not to exceed the penalty hereof between the amount specified in the bid proposal and such larger amount for which the Department may contract with another party to perform the work covered by said bid proposal, then this obligation shall be null and void, otherwise, it shall remain in full force and effect.

IN THE EVENT the Department determines the PRINCIPAL has failed to comply with any requirement as set forth in the preceding paragraph, then Surety shall pay the penal sum to the Department within fifteen (15) days of written demand therefor. If Surety does not make full payment within such period of time, the Department may bring an action to collect the amount owed. Surety is liable to the Department for all its expenses, including attorney's fees, incurred in any litigation in which it prevails either in whole or in part.

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

PRINCIPAL	**SURETY**
_____	_____
(Company Name)	(Company Name)
By: _____	By: _____
(Signature & Title)	(Signature of Attorney-in-Fact)

Notary Certification for Principal and Surety

STATE OF ILLINOIS,
COUNTY OF _____

I, _____, a Notary Public in and for said County, do hereby certify that

_____and _____

(Insert names of individuals signing on behalf of PRINCIPAL & SURETY)

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

Given under my hand and notarial seal this _____ day of _____, A.D. _____.

My commission expires _____ _____
Notary Public

In lieu of completing the above section of the Proposal Bid Form, the Principal may file an Electronic Bid Bond. By signing below the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the State of Illinois under the conditions of the bid bond as shown above.

_____	_____	_____
Electronic Bid Bond ID#	Company/Bidder Name	Signature and Title

PROPOSAL ENVELOPE

Illinois Department of Transportation

PROPOSALS

for construction work advertised for bids by the
Illinois Department of Transportation

Item No.	Item No.	Item No.

Submitted By:

Name:
Address:
Phone No.

Bidders should use an IDOT proposal envelope or affix this form to the front of a 10” x 13” envelope for the submittal of bids. If proposals are mailed, they should be enclosed in a second or outer envelope addressed to:

Engineer of Design and Environment - Room 326
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

NOTICE

Individual bids, including Bid Bond and/or supplemental information if required, should be securely stapled.

CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

NOTICE

None of the following material needs to be returned with the bid package unless the special provisions require documentation and/or other information to be submitted.

Contract No. 76973
MADISON & ST. CLAIR, IL & ST. LOUIS, MO Counties
Section DIST. 8 ITS 2006-2
Project ITS-417(104)
Route FAI 55/70
ITS Program Funds - District 8

Illinois Department of Transportation

Illinois Department of Transportation

NOTICE TO BIDDERS

1. **TIME AND PLACE OF OPENING BIDS.** Sealed proposals for the improvement described herein will be received by the Department of Transportation at the Harry R. Hanley Building, 2300 South Dirksen Parkway, in Springfield, Illinois until 10:00 o'clock a.m., September 22, 2006. All bids will be gathered, sorted, publicly opened and read in the auditorium at the Department of Transportation's Harry R. Hanley Building shortly after the 10:00 a.m. cut off time.

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

   Contract No. 76973
   MADISON & ST. CLAIR, IL & ST. LOUIS, MO Counties
   Section DIST. 8 ITS 2006-2
   Project ITS-417(104)
   Route FAI 55/70
   ITS Program Funds - District 8

3. **INSTRUCTIONS TO BIDDERS**. (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

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

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

By Order of the
Illinois Department of Transportation

Timothy W. Martin, Secretary

BD 351 (Rev. 01/2003)

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted March 1, 2005

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

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-02) (Revised 3-1-05)

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted January 1, 2002, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAI Route 55/70; Section Dist 8 ITS 2006-2; Madison and St. Clair Counties and City of St. Louis, MO and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

PROJECT OVERVIEW

This project is part of the regional Intelligent Transportation System. The equipment deployed as part of this project will provide IDOT the ability to monitor and verify traffic conditions on the urban interstate system. The images and data gathered by this equipment will also be shared with the Missouri Department of Transportation and will be made available to the public via an internet web-site.

As part of this project, three (3) new color cameras will be installed with pan, tilt, and zoom capabilities. One (1) will be mounted on a new camera lowering system steel pole on I-55/70 at Mile Post 5.2 approximately 1.2 miles east of IL 203. The second new camera will be mounted on a new camera lowering system steel pole on I-55/70 at Mile Post 3.2. A third will be mounted on an existing sign truss located on I-55/70/64 at Mile Post 1.7. Also, seven (7) existing cameras' telecommunications and nine (9) vehicle video detection systems will be transferred to the new communications backbone constructed with this project and connected to the previous project (ITS 2006-01) which ends 0.5 miles west of IL 111. One (1) new video detection system will be installed to be compatible with existing equipment in the field. Five (5) new radar detection systems will be installed on this project. One (1) new Dynamic Message Sign (DMS) will also be installed on Westbound I-55/70 at Mile Post 5.3. The images and data will be transmitted from the communications cabinets to the fiber backbone and into the Traffic Management Center (TMC) located at 1102 Eastport Plaza Drive, Collinsville, IL. The images will then go through a matrix switch and will be displayed on one (1) of the eight (8) existing color LCD monitors at the District 8 TMC. There is also the removal of two (2) existing video detection systems and their associated equipment.

The equipment suppliers must have a minimum of three (3) years direct manufacturing experience in surveillance camera system, conduit based vehicle detection, video vehicle detection system, or radar vehicle detection system, and will be required to establish a record of proven field service for the system's hardware and software being provided for this contract.

The equipment supplier also must have installed at least one (1) system of the type to be provided for this contract that has demonstrated at least one (1) year of satisfactory operation prior to the letting of this contract. The system hardware and copyrighted software to be provided by this contract shall have been fully operational for a period of at least three (3) months prior to the letting date of this contract. The equipment supplier shall furnish the Department with the location of the system(s) and the persons responsible, who shall be available for discussion and/or recommendation.

The manufacturer of the Intelligent Transportation System equipment must have product liability insurance of not less than $5 million in effect at the time of bid.

LOCATION OF PROJECT

The project involves a 6.5 mile stretch of I-55/70 from approximately 0.5 miles west of the Popular Street Bridge at the Fourth Street communications cabinet in Missouri to Mile Post 5.9 west of IL 111 which is the end point of the ITS 2006-01 project. There are three (3) proposed CCTV camera locations, one (1) proposed video detection location, five (5) proposed radar detection locations, seven (7) existing CCTV locations, nine (9) existing video detection locations and one (1) DMS location. There are also two (2) proposed removal of video detection systems and their associated cabinet and hardware. Also, a complete fiber optic backbone communications system to bring all of the proposed and existing ITS elements back to the TMC center by connecting to the ITS 2006-01 project.

The proposed video detection systems are located at the following:

1. PSBC00.9E.09D; I-55/70/64 Parapet wall on Ramp “S” (Tudor exit ramp Pier S16)

The proposed CCTV cameras are located at the following:

1. PSBC01.7A.42C; I-55/70/64 - 0.1 miles east of River Park Dr. (IL 15)
2. 557003.2A.41C; I-55/70 - 0.2 miles east of Exchange Ave.
3. 557005.2A.40C; I-55/70 - 1.5 miles east of IL 203

The proposed radar detection systems is located at the following:

1. PSBC02.4; EB I-55/70 - 0.2 miles east of Martin Luther King Dr.
2. PSBC02.4; EB I-55/70 - 0.2 miles east of Martin Luther King Dr.
3. 557003.2A.23R; I-55/70 - 0.2 miles east of Exchange Ave.
4. 557003.8A24R; I-55/70 - 0.3 miles west of IL 203
5. 557005.2A26R; I-55/70 - 1.5 miles east of IL 203

The proposed HAR signage systems are located at the following:

1. PSBC01.4E.01H; I-55/70/64 Intersection of 5th St. @ Converse Ave.
2. 557005.3W.08S; I-55/70 - 1.6 miles east of IL 203

The existing CCTV camera locations are at the following:

1. PSBC00.3A.01C; I-55/70/64 Poplar St. Bridge sign truss
2. 0IL300.1A.02C; IL 3 On Ramp to I-55/70/64
3. PSBC00.9A.03C; I-55/70/64 Parapet wall on Ramp “S” (Tudor exit ramp Pier S16)
4. MLKB00.7A.04C; M.L. King Bridge sign truss
5. PSBC02.4A.05C; I-55/70/64 - 0.1 miles east of Martin Luther King Drive
6. 006402.8A.06C; I-64, 0.1 miles east of IL 3 (St. Clair Ave.)-(*controller to be relocated)
7. 557003.8A.19C;I-55/70, 0.8 miles east of IL 3 (St. Clair Ave.)

The existing Video Detection system locations are at the following:

1. PSBC00.3W.01D; I-55/70/64 Poplar St. Bridge sign truss
2. PSBC00.3E.02D; I-55/70/64 Poplar St. Bridge sign truss
3. PSBC00.9W.03D; I-55/70/64 Parapet wall on Ramp “S” (Tudor exit ramp Pier S16)
4. PSBC00.9W.04D; I-55/70/64 Parapet wall on Ramp “S” (Tudor exit ramp Pier S16)
5. PSBC00.9E.05D; I-55/70/64 Parapet wall on Ramp “S” (Tudor exit ramp Pier S16)
6. PSBC01.5W.06D; I-55/70, 0.3 miles east of River Park Dr. (IL 15)
7. MLKB00.7E.7D; M.L. King Bridge sign truss
8. MLKB00.7E.08D; M.L. King Bridge sign truss
9. 006402.8W.11D; I-64, 0.1 miles east of IL 3 (St. Clair Ave.)-(*)

The existing Video Detection system locations to be removed and salvaged are at the following:

1. #PSBC02.6W.09D; I-55/70/64, 0.3 miles east of Martin Luther King Drive
2. #PSBC02.6E.10D; I-55/70/64, 0.3 miles east of Martin Luther King Drive

The Fiber Optic Backbone will go from the communications cabinet near Fourth Street in Missouri up onto the Mississippi River Bridge attached to the I-70 eastbound ramp to the west Bridge abutment. It will then enter into the southern most box girder crossing the river and again come out of the box girder around the east abutment and then continue along the Poplar Street Bridge complex (PSBC) structure until Mile Post 0.3 where it will drop onto the ground and follow along the southern edge of the PSBC. Near the location of the existing controller compound near 6th Street the backbone will go north into the compound and the return again to the southern edge of the PSBC. It will stay on the southern side of I-55/70 until Mile Post 2.4 where it will cross north of I-55/70 before proceeding east. The backbone will then travel along the existing service road north of the Tri-level exchange area until St. Clair Avenue where it will go into the IDOT Bowman Yard and proceed west on the its northern edge. It will then go east

to southeast where it will attach to the northern side of the Bridge Structure over the B&O railroad. After crossing the railroad, it will again cross to the southern side of I-55/70 before proceeding east. At Mile Post 4.4 the backbone will then cross north into the median of I-55/70 before proceeding east. The backbone will stay in the median until Mile Post 5.9 where it will cross the north side of I-55/70 and connect in the cabinet being installed under the ITS 2006-01 project. There will also be a spur on the Fiber run going up onto the MLK bridge approach to pick up video detection and a CCTV camera communications cabinet near Fourth Street in Missouri.

DESCRIPTION OF PROJECT

This work shall consist of installing:

Three (3) new conduit based vehicle detection systems
Three (3) new CCTV camera systems
Two (2) new Video detection systems
Two (2) new Radar detection system
One (1) HAR sign with beacon
One (1) HAR Dynamic Message Sign
Two (2) removed Video detection systems
One (1) relocated Video detection/CCTV camera controller cabinet
Fiber Optic Backbone communications system with cabinets and termination equipment

MONTHLY LABOR SUMMARY AND ACTIVITY REPORTING SYSTEM
Effective: 1-1-1995 Revised June 2001

I. Monthly Labor Summary Report, Form SBE 148

The prime contractor and each first and second tier sub-contractor, (hereinafter referred to as "subcontractor") shall submit a certified Monthly Labor Summary Report directly to the District Engineer.

This report is in lieu of submittal of the Monthly Workforce Analysis Report, Form SBE 956.

This report must be received in District Eight no later than the tenth day of the next month.

This Report shall be submitted by the prime contractor and each subcontractor, for each consecutive month, from the start, to the completion of their work on the contract.

The data source for this Report will be a summation of all personnel and hours worked on each subject contract for the month based on weekly payrolls for that month.

The Monthly Labor Summary Report is required to be submitted in one of the following formats:

a.) For contractors having IDOT contracts valued in the aggregate at $250,000 or less, the report may be typed or clearly handwritten using Form SBE 148 for submittal to the District Engineer for District Eight.

b.) For contractors having IDOT contracts valued in the aggregate at more than $250,000, the report must be submitted in a specific “Fixed Length Comma Delimited ASCII Text File Format”. The subject file format is detailed on the next page. Submittal of this file may be by 3.5 inch disk, modem, or by e-mail.

II. Monthly Contract Activity Report, Form SBE 248

The prime contractor and each subcontractor shall submit a monthly report directly to the District Engineer reflecting their contract activity on all Illinois Department of Transportation contracts they have in force in District Eight.

This report shall be submitted for each consecutive month, from the start, to the completion of all contracts in District Eight.

The report must be received in the District Office no later than the tenth day of the next month.

Monthly Labor Summary and Activity Reporting System Codes and Formats

Indicated below for your reference are the Employee Codes and File Formats required for this system.

I.) Monthly Labor Summary Report, Form SBE 148

The following employee codes are to be used to identify each individual on the Summary Report:

1. **Gender:** **M** - Male **F** - Female

2. **Ethnic Group**: **1** - White **2** - Black **3** - Hispanic
4 - American Indian/Alaskan Native **5** - Asian/Pacific Islander

3. **Work Classification**: **OF** - Official **SU** - Supervisor **FO** - Foremen
CL - Clerical **CA** - Carpenter **EO** – Operator **ME** - Mechanic
TD - Truck Driver **IW** - Ironworker **PA** - Painter **OT** - Other
EL - Electrician **PP** - Pipefitter **TE** – Technical **LA** – Laborer
CM - Cement Mason

4. **Employee Status**: **O** - Owner Operator **J** - Journeyman
C - Company **A** – Apprentice **T** - Trainee

Specific “Fixed Length Comma Delimited ASCII File Format”

Order	Field Name	Type	Size
1	Contractor Number	A	4
2	Contractor Reference Number	A	6
3	Contract Number	A	5
4	Period (07/28/2000)	D	10
5	SSN (111-11-1111)	A	11
6	Name	A	40
7	Gender	A	1
8	Ethnic Group	A	1
9	Work Classification	A	1
10	Employee Status	A	1
11	Total Hours (0000060.00)	N	10

File Name Conventions: (Contractor Number + Report Month/Year).Txt
i.e. 20001298.Txt

II.) Monthly Contract Activity Report, Form SBE 248

The following activity codes are to be used to identify the contractor’s contract status each month on the Monthly Activity Report, Form SBE 248:

A. Contract Status: 1 - Not Started 2 - Active 3 - No Work
4 - Suspended 5 - Complete

Failure to comply with this special provision may result in the withholding of payments to the contractor, and/or cancellation, termination, or suspension of the contract in whole or part.

Compliance with this Special Provision shall be considered incidental to the cost of the contract and no additional compensation will be allowed for any costs incurred.

All prime and subcontractors having contracts in the aggregate exceeding $250,000 must provide a “Fixed Length Comma Delimited ASCII File” for approval prior to the start of construction.

This Special Provision must be included in each subcontract agreement.

The Department of Transportation is requesting disclosure of information necessary to accomplish the statutory purpose as outlined under 23CFR part 230 and 41CFR part 60.4 and the Illinois Human Rights Act. Disclosure of this information is REQUIRED. Failure to comply with this special provision may result in the withholding of payments to the contractor, and/or cancellation, termination, or suspension of the contract in whole or part.

Compliance with this Special Provision shall be considered incidental to the cost of the contract and no additional compensation will be allowed for any costs incurred.

This Special Provision must be included in each subcontract agreement.

OFFICE COPY MACHINE
Effective: January 1, 1987 *Revised: October 15, 1996*

The copier specified in Article 670.02 shall meet the following specifications:

(1) Edge-to-edge copying.

(2) Up to 275 mm x 425 mm (11 in x 17 in) size for copy-size capabilities.

(3) A detachable platen cover in order to copy portions of large-bound documents.

(4) A cabinet stand for the copier.

TELEPHONE ANSWERING MACHINE
Effective: January 11, 1990 *Revised: June 7, 1996*

The telephone answering machine specified in Article 670.02 shall meet the following minimum specifications:

(1) Time/Day Indication - A computerized voice records the date and time that each message is received.

(2) Beeperless Remote - Any remote touch-tone phone can be used to review all messages by the use of an access code.

(3) Dual-Cassette System - Pre-recorded and received messages are managed on separate cassettes.

(4) Conversation Record - The operator can record any phone call.

(5) Remote Turn-On - Any remote touch-tone phone can be used to turn on the answering machine by the use of an access code.

(6) Tape-Full Message - The Caller is advised if the message tape is too loaded to record the call.

(7) Battery Back-Up - The settings and messages are protected from power failures.

(8) Two-Line Capacity - Projects that have a second phone line through the provision of a 670.05 Engineer's Field Laboratory shall provide a single phone answering machine that services both lines.

Prior to the purchase of this item, the Contractor shall submit specifications for the proposed machine to the Engineer for his approval.

COOPERATION BETWEEN CONTRACTORS

It is anticipated that this project will be constructed concurrently with other highway projects for the same area. The project that may be under contract concurrent with this project is Project IM-70, FAI Route i-55/70, Section 82-3HVB-3R-3, Contract # 76305, Poplar Street Bridge Approaches (Tudor Ramp), June 16, 2006 Letting (August 14, 2006 notice to proceed) is expected to be completed by November 16, 2007 and I-44 ITS (MoDot) Job No. J6I1832) which is scheduled for a May 19, 2006 Letting

TRAFFIC CONTROL PLAN

Effective: July 12, 1993 *Revised: May 12, 1997*

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

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

701001	701101	701106	701400	701406
701411	701501	702001		

In addition, the following Special Provision(s) will also govern traffic control for this project:

Authority of Railroad Engineer
Construction and Maintenance Sign Supports
Flagger Vest
Personal Protective Equipment
Penalty During Peak Hours
Public Convenience and Safety
Railroad Flaggers
Temporary Closure of all Lanes
Traffic Control and Protection, Standard 701406 (Special)
Traffic Control Deficiency Deduction
Work Zone Public information Signs
Work Zone Speed Limit Signs
Work Zone Traffic Control
Work Zone Traffic Control Devices

PENALTY DURING PEAK HOURS

If the Contractor fails to have all lanes of traffic open during the peak hours of traffic or conducts operations that will impede the flow of traffic during peak hours, a monetary penalty shall be assessed to the Contractor. The penalty shall be $1000.00 for each 15 minute period or a portion thereof during the peak hours.

TEMPORARY CLOSURE OF ALL LANES

The Contractor will be permitted to close all lanes to traffic on I-55/70 (less than 15 minutes) during non-peak hours 9:00 a.m. to 3:00 p.m. provided the following traffic control requirements are met:

Prior approval to the Resident Engineer will be required.
Two (2) flaggers will be required at the work site.

TRAFFIC CONTROL AND PROTECTION, STANDARD 701406 (SPECIAL)

A truck-mounted attenuator (TMA) shall be required for crew protection during traffic control set up and removal.

The truck should have an actual weight no less than 11,000 pounds and no greater than 26,000 pounds or as recommended by the TMA manufacturer. The truck should be positioned to allow a roll-ahead distance as follows (or as recommended by the TMA manufacturer):

Stationary operation – 100 ft.
Moving operation – 180 ft.

The TMA shall also have a Type C (48" X 96" (min.)) arrow board attached.

Note: When utilized in a stationary work operation, the truck should be in neutral and the brakes engaged.

A Variable Message Sign board shall be placed in advance of closure of the lane as directed by the Engineer.

During peak hours the lane closure shall be as follows:

No WB lane closure from 6:00 A.M. to 9:00 A.M. on I-55/70
No EB lane closure from 3:00 P.M. to 6:00 P.M. on I-55/70

The cost to pay for this requirement shall be included in the contract lump sum price for TRAFFIC CONTROL AND PROTECTION, STANDARD 701406 (SPECIAL).

CONSTRUCTION AND MAINTENANCE SIGN SUPPORTS
Effective: April 21, 1981 *Revised: October 15. 1996*

This work shall be done in accordance with Article 1084.04 of the Standard Specifications and Highway Standard 702001 except as herein modified.

All construction signs mounted on permanent support for use in temporary traffic control having an area of 1 square meter (10 square feet) or more shall be mounted on two 100 mm x 100 mm (4 in x 4 in) or two 100 mm x 150 mm (4 in x 6 in) wood posts.

Type A metal post (two for each sign) conforming to Article 1006.29 of the Standard Specifications may be used in lieu of wood posts. Type A metal posts used for these signs may be unfinished.

This work shall not be measured and paid for but shall be considered incidental to the contract.

STATUS OF UTILITIES TO BE ADJUSTED

NAME AND ADDRESS OF UTILITY	TYPE	LOCATION	ESTIMATED DATE RELOCATION COMPLETED

NO UTILITIES TO BE ADJUSTED

The above represents the best information of the Department and is only included for the convenience of the bidder. The applicable provisions of Sections 102, 103, and Articles 105.07 and 107.20 of the Standard Specifications for Road and Bridge Construction shall apply.

If any utility adjustment or removal has not been completed when required by the Contractor's operation, the Contractor should notify the Engineer in writing. A request for an extension of time will be considered to the extent the Contractor's operations were affected.

CHAIN LINK FENCE TO BE REMOVED AND RE-ERECTED

This work shall consist of the partial removal, storage, and re-erection of an existing fence as shown in the plans, as directed by the Engineer, in accordance with Section 664 of the Standard Specifications and as herein specified.

Prior to removal, the Engineer and Contractor shall inspect the fence and determine what fence apparatus needs to be repaired or replaced. Based upon this inspection, any items repaired or replaced will be paid for in accordance to Article 109.04.

The Contractor shall take care not to damage the existing fence during its removal, storage, and re-erection. Any damage to the fence caused by Contractor’s forces, shall be repaired and/or replaced to the Engineer’s satisfaction at the Contractor’s expense.

This work will be paid for at the contract unit price per foot for CHAIN LINK FENCE TO BE REMOVED AND RE-ERECTED, and no other compensation will be permitted.

LIGHT POLE FOUNDATION

Effective: Unknown Revised: January 1, 2002

The light pole foundation shall be in accordance with Section 836 of the Standard Specifications except Article 836.03(d) shall be deleted.

MAINTENANCE OF EXISTING ELECTRICAL DEVICES
Effective: Unknown *Revised: October 15, 1996*

The existing electrical devices which lie within the construction limits of this project will continue to be the maintenance responsibility of the Illinois Department of Transportation. Electrical devices are defined to mean highway lighting installations, traffic signals, flashing beacons, sign truss illumination units, changeable message signs, motorist aid call boxes, dewatering pumps, speed monitoring devices, traffic volume count stations, wrong way movement detectors, following-too-close monitors, ice/fog detectors or any such devices or facilities the Department may have to maintain.

Any damage or malfunctions of these devices, observed by the Contractor, shall be reported immediately to the Department.

If it is determined by the Engineer that the Contractor is responsible for damage of any type to above-mentioned existing electrical devices, including underground wiring, as a result of negligence or poor workmanship, the Contractor shall be responsible for the repair of these facilities. These repairs shall be accomplished by whatever method the Department deems necessary. In the event the repairs are not made by the Contractor, the Contractor will be required to reimburse the Department for such repairs within 60 days of receiving written notification of said damage.

The Department will continue to maintain the existing electrical devices until such time as the Contractor removes these devices, if required by this contract. Any new, rebuilt, or modernized equipment installed as a requirement of this contract shall be the maintenance responsibility of the Contractor until such time as this equipment is final inspected and found to be installed in a satisfactory manner by the Department. Existing individual equipment not involved with the work of this contract will continue to be the maintenance responsibility of the Department.

DOCUMENTATION

At the pre-construction meeting, the Contractor shall submit the following items for approval by the Engineer.

Five (5) complete copies of the manufacturer's descriptive literatures and technical data for the equipment that will be installed on the contract. The descriptive literatures and technical data shall be adequate for determining whether the equipment meets the requirements of the plans and specifications. If the literature contains more than one (1) item, the Contractor shall indicate which item or items will be furnished.

Five (5) complete copies of the shop drawings for the surveillance camera system components showing in detail the fabrication thereof and the certified mill analysis on the materials used in the fabrication, anchor bolts and reinforcing materials.

Three (3) operations and maintenance manuals shall be supplied for all equipment and components of this project. The system operator's manual and equipment manuals shall contain as a minimum the Operator's manual which includes:

Step-by-step system operation instructions
Theory of system operation
Explanations and descriptions of data elements
Recovery procedures to be followed in case of system malfunction
Procedures for updating all elements of the data base
Functional descriptions of all equipment in the system

Equipment installation and maintenance manual for each controller, auxiliary device, software, and all other equipment and components provided on this project which includes:

Technical descriptions of the operation of each system component
Operation instructions for each type of equipment
Theory of operation describing the interaction of equipment components and signal flow
Detailed schematic diagrams
Wiring diagrams that identify wire tagging used for all electrical connections
Troubleshooting procedures to assist the maintenance staff in the identification and isolation of malfunctions
Wiring diagrams for each location's cabinet

The Engineer will review the literature and furnish written approval or rejection to the Contractor within 15 calendar days after receipt of the literature. If the literature is rejected, the Contractor shall resubmit corrected literature within an additional fifteen (15) calendar days. Within ten (10) calendar days after receipt of written approval of any material or equipment, the Contractor shall order such material or equipment and shall furnish a copy of such order to the Engineer.

DESCRIPTION OF PAN-TILT-ZOOM CAMERA IMAGE AND CONTROL

1. Junction Box

The camera is a Sensormatic Speed Dome Ultra VII Day/Night Enhanced, RAS917LSE or equivalent and is connected to the junction box components. The video image and the camera control are connected to the International Fiber Systems VT 1910 video transmitter/data transceiver (VT/DT) or equivalent with coaxial cable and twisted shielded pair cable, respectively, to convert electric signals to optic signals to minimize radio frequency interference. It receives power from a 110VAC/24VAC transformer with standard cables.

The VT/DT is powered with a 120VAC/12VDC adapter connected to a duplex receptacle. The 120VAC/24VAC transformer is connected to a 15A circuit breaker. The duplex receptacle and the 15A circuit breaker are connected to an EDCO, Inc. SHA-1250 surge arrestor or equivalent.

The junction box is connected to the control cabinet with fiber optic cable from the VT/DT, standard cables for power are connected to the surge arrestor and twisted shielded pair cable are connected to the surge arrestor failure indication relay contacts.

All cables shall be specified to the junction box component and camera requirements.

2. Controller Cabinet

The fiber optic cables from the junction box VT/DT are connected to the International Fiber Systems VR 1910 video receiver/data transceiver (VR/DT) or equivalent to convert optic signals to electric signals. The VR/DT is connected to the Cornet iVDO Streamer digital video encoder (VDE) or equivalent to convert analog signals to digital signals. The DVE is connected to the Cisco Ethernet switch for forwarding to the TMC.

The VR/DT and FOM are powered by 120VAV/12VDC adapters connected to a duplex receptacle. The DVE and Ethernet switch are connected to a duplex receptacle. The VR/DT, DVE and Ethernet switch duplex receptacles are connected to a 20A circuit breaker. A spare ground fault interruptible duplex receptacle is connected to a 15A circuit breaker. The 20A and 15A circuit breakers are connected to an EDCO, Inc. SHA 1250 surge arrestor. Power cables from the surge arrestor are connected to the service installation.

All cables shall be specified to controller cabinet component requirements.

3. District 8 TMC

The Ethernet WIDE AREA NETWORK comprised of Cisco Ethernet switches is connected to the Cornet CDX350R or iVDO Streamer digital video decoder (DVD) or equivalent. The DVD converts the video image and camera controls from a digital signal to an analog signal. The DVD is connected to the existing video switcher (American Dynamics 1024 Matrix Switcher/Controller System, AD1024R32-16 or equivalent). The video switcher is connected to a total of eight 40" existing color LCD monitors, two (2) keyboard controls (American Dynamics, AD 2088 keyboard control or equivalent), Jupiter Systems Fusion 980 Video Wall Controller, and 360 Surveillance ITS Cameleon camera control software and the Department existing ATMS. The DVDs are to be configured to “tune into” the video stream from a corresponding DVE. The DVDs and DVEs will form a married pair. The PTZ signals from the existing video server will be carried by these DVD / DVE pairs and delivered to the existing and new CCTV cameras. The camera system installed on this contract shall be compatible with all existing components of the ITS video and Pan/Tilt/Zoom data.

CLOSED CIRCUIT TELEVISION CAMERA SYSTEM

This work shall consist of furnishing, installing, and placing into operation a closed circuit television camera system. All new equipment shall be compatible and interchangeable with the existing closed circuit television camera system. The Contractor may replace the existing system at no cost to the Department. All work required to modify the existing closed circuit television camera system in order to integrate the new equipment to be installed as referenced below with the existing system is included in the unit cost of CLOSED CIRCUIT TELEVISION CAMERA SYSTEM. This system shall consist of the following equipment:

1. Color Camera (existing system - Sensormatic Speed Dome Ultra VII Day/Night Enhanced, RAS918LSI)
2. Video Transmitter/Data Transceiver (existing system - INTERNATIONAL FIBER SYSTEMS VT 1910)
3. Video Receiver/Data Transceiver (existing system - INTERNATIONAL FIBER SYSTEMS VR 1910)

4. Digital Video Encoder (Cornet iVDO Streamer)
5. Surge Arrestor (existing system - EDCO Inc., Model SHA-1250)

The appropriate transformers, circuit breakers, surge arrestors, terminal strips, & receptacles (GFCI) required for a closed circuit television camera system are also included in this pay item.

This work will be paid for at the contract unit price each for CLOSED CIRCUIT TELEVISION CAMERA SYSTEM, which price shall be payment in full for furnishing and installing a closed circuit television camera system, with necessary connections and adjustments for proper operations to the satisfaction of the Engineer.

COLOR CAMERA

Sensormatic Speed Dome Ultra VII Day/Night with Electronic Image Stabilization, RAS918LSI or equivalent. The camera shall include all necessary accessories to provide for complete installation with LIGHT POLE, STEEL, 45 FT. WITH CAMERA LOWERING SYSTEM assembly. All accessories required to successfully complete the installation shall be included in the cost of CLOSED CIRCUIT TELEVISION CAMERA SYSTEM. The unit includes the features listed below and shall meet the performance requirements listed below:

1. 1/4" Charged Coupled Device image sensor
2. 230X total zoom
3. 23X optical zoom
4. 10X digital zoom
5. Auto/manual focus control
6. Auto/manual iris control
7. Manual Pan/Tilt Speed, 1 degree - 100 degree per second (based on zoom position)
8. Preset Pan/Tilt Speed, 220 degree per second, maximum
9. 470 lines of horizontal resolution
10. Sunshield
11. Manual/Automatic Wide Dynamic Range Modes
12. Light levels – 0.009 lux in black and white with open shutter
13. Privacy zone capability where it does not interfere with normal surveillance operations (only blocks out sensitive areas)
14. Camera must have capability to display direction on monitor (direction the camera is currently pointing and the direction in which it is moving)
15. Capability of up to 96 preset programmable positions

A. Environmental Enclosure: The environmental enclosure shall be a Sensormatic ADODH-CLR or equivalent and shall house and protect CCTV camera, lens, and pan and tilt unit from outdoor environment which the assembly must be designed to function in. The enclosure shall be a domed housing and meet or exceed the following requirements:

    1. Configuration: The top of the enclosure shall be aluminum. The inside shall be flat black. The bottom of the enclosure shall be clear acrylic. The enclosure shall be fully watertight and weatherproof. No condensation shall develop at any time during the testing period for this contract.

The CCTV camera and zoom lens shall be mounted to insure that the enclosure will not obstruct the field of view of the CCTV camera. Sufficient clearance between the zoom lens extended to its furthest point of travel and the enclosure shall be provided to insure that mirroring will not occur.

The enclosure shall be constructed so as to minimize the effort required to remove the CCTV camera assembly for maintenance.

2. Heater: The enclosure shall be equipped with a heater or heaters controlled by a thermostat. This heater shall be powered at all times, and shall operate independently of the camera. The heater or heaters shall perform such that no condensation shall develop at any humidity level less than the 95%. Condensation shall also not occur at any time due to a sharp increase or decrease relative humidity.

3. Cable Entry and Mounting: Entry into the enclosure by power, composite video output, and remote CCTV camera control and monitor functions shall be via weatherproof UL listed connectors intended for outdoor use.

Each enclosure shall contain the pan and tilt unit within the dome. The enclosure shall provide a means of securely attaching the camera and lens.

B. Pan and Tilt Units: A pan and tilt drive unit shall be supplied as part of the CCTV camera assembly and meet or exceed the following requirements:

1. Configuration: The pan and tilt unit shall be designed for outdoor applications and shall be constructed to allow maintenance of the unit without removal from the CCTV camera field location. All parts shall be corrosion protected.

2. Mechanical: The pan and tilt unit shall have the ability to handle the proposed CCTV camera and lens load within the dome. The unit shall be capable of at least 64 settable and selectable preset position points and have the ability to attach alphanumeric character identification to each scene position point. The unit shall operate as follows:

   a. Pan (Horizontal): 360 degrees ($\pm$ 1 degree), at a proportionally variable rate to obtain new position

   b. Tilt (Vertical): 2 degrees to - 90 degrees ($\pm$ 1 degree) at a proportionally variable rate to obtain new position

The pan and tilt unit shall be equipped with a cable guard to prevent cable entanglement during combined pan and tilt operations.

The mounting base shall be designed for the CCTV camera and lens specified herein.

C. Electrical: The unit shall have an input voltage of 115 VAC

1. Five - amp (10 million cycle rating) limit switches for pan and tilt shall be provided to guard against motor burn-out.

2. The pan and tilt motor shall be two phase induction type, continuous duty with instantaneous reversal operation.

A 3.5 inch length of 1.5 inch NPT threaded pipe fitting for attaching the camera to a mount shall be included with each camera.

The cost of this work will be included in the cost of CLOSED CIRCUIT TELEVISION CAMERA SYSTEM, which price shall be payment in full for furnishing and installing a closed circuit television camera system, with necessary connections and adjustments for proper operations.

VIDEO TRANSMITTER/DATA TRANSCEIVER

International Fiber Systems VT 1910 or equivalent. Unit includes the features and meets the performance requirements listed below.

1. Fully color compatible
2. Compatible with Video Receiver/Data Transceiver
3. Pulse Frequency Modulation
4. LED Power indicator to indicate presence of input power
5. Solid state limiters on all power lines which provide for automatic reset
6. UL Listed
7. Wavelength - 850 nm

A. Video
   1. 1 volt peak to peak
   2. 5 Hz - 8.0 Hz bandwidth
   3. Less than 5% differential gain
   4. Less than 5% differential phase
   5. Less than 1% tilt
   6. 60 dB signal - noise

B. Data
   1. RS-232, RS-422 compatible
   2. DC-50Kbps data rate
   3. Simplex or Full Duplex operating mode
   4. -40^{o} C to 74^{o}C Operating Temperature
   5. 0% to 95% Relative Humidity

The cost of this work will be included in the cost of CLOSED CIRCUIT TELEVISION CAMERA SYSTEM which price shall be payment in full for furnishing and installing a closed circuit television camera system, with necessary connections and adjustments for proper operations.

VIDEO RECEIVER/DATA TRANSCEIVER

International Fiber Systems VR 1910 or equivalent. Unit includes the features and meets the performance requirements listed below:

1. Fully color compatible
2. Compatible with Video Transmitter/Data Transceiver
3. Pulse Frequency Modulation
4. LED Power indicator to indicate presence of input power
5. Solid state limiters on all power lines which provide for automatic reset
6. UL Listed
7. Wavelength: 850 nm

A. Video
   1. 1 volt peak to peak
   2. 5 Hz - 8.0 Hz bandwidth
   3. Less than 5% differential gain
   4. Less than 5% differential phase
   5. Less than 1% tilt
   6. 60 dB signal-noise

B. Data
   1. RS-232, RS-422 compatible
   2. DC-50Kbps data rate
   3. Simplex or Full Duplex operating mode
   4. -40^{o} C to 74^{o}C Operating Temperature
   5. 0% to 95% Relative Humidity

The cost of this work will be included in the cost of CLOSED CIRCUIT TELEVISION CAMERA SYSTEM, which price shall be payment in full for furnishing and installing a closed circuit television camera system, with necessary connections and adjustments for proper operations.

DIGITAL VIDEO ENCODER

This work shall consist of the furnishing and installing a Cornet iVDO Streamer 2/4 Encoder or equivalent. The unit includes the following features and shall meet the performance requirements listed below.

Video

Format:

NTSC color, B/W composite, 30 fps (29.97), 2:1 interlaced, compliant with IEA-170 PAL color, B/W, composite, 25 fps, 2:1 interlaced Compliant with CCIR 624 S-video, Composite BNC.

Resolution:

Horizontal and Vertical pixels: MPEG-2 & 4 NTSC: 720 X 480 D1, 704 X 480 4CIF, 352 X 240 CIF, 176 X 120 QCIF. MPEG-2 & 4 PAL: 720 X 576, 704 X 576, 352 X 288, 176 X 144.

Frame Rate:

MPEG-4: 1, 2, 3, 4, 5, 6, 7, 10, 15, and 30 fps (NTSC) 1, 2, 3, 4, 5, 6, 7, 10, 15, and 25 fps (PAL) MPEG-2: 30 fps (NTSC), 25 fps (PAL)

Conformance:
MPEG-2 Compliant with ISO/IEC 13818-1, 2 MP @ ML
MPEG-4 Compliant with ISO/IEC 14496

Video Parameters:
Brightness, contrast, hue, saturation, and sizing

Video Latency:
Less than 200 msec @ 5 Mbp end-to-end

Video Bandwidth:
1.5 Mbps to 10 Mbps for MPEG-2, 64 Kbps to 5 Mbps for MPEG-4. Bandwidth increments are user selectable. The default bandwidth is set to 4 Mbps for MPEG-2 and to 1 for MPEG-4.

Connectors:
BNC (f) 75 Ω unbalanced for composite, S-video connector, two stereo 3.5 mm jacks for audio in and audio out.

Serial Port

Ports:
Two EIA-232/422/485

Standard Data Rates:
From 1,200 bps to 115,200 bps

Port communications:
Encoder serial to decoder derail, IP socket to encoder/decoder serial port

Protocol:
UDP and TCP/IP

Contact Closure

Network Protocols:
RTTP, UDP, TCP/IP, HTTP, IGMP.V2, ICMP, ARP, DHCP

IP Packets:
Unicast and multicast (IGMP V2), adjustable packet payload size

Mechanical and Environmental

Temperature
operating- -40 degrees Celsius to 75 degrees Celsius (-40 degrees Fahrenheit to 167 degrees Fahrenheit)
storage: -40 degrees Celsius to 75 degrees Celsius (-49 degrees Fahrenheit to 186 degrees Fahrenheit)

Humidity: 10% - 95% non-condensing

Standalone Enclosure Specifications

Power:
110VAC/220VAC 50-60HZ, 20 Watts, Temp: UL approved with encoder and decoder to 75 degrees Celsius

This work shall be paid for as part of the contract unit price each for CLOSED CIRCUIT TELEVISION CAMERA SYSTEMS which price shall be payment in full for furnishing and installing a closed circuit television camera system, with necessary connections and adjustments for proper operations.

DIGITAL VIDEO DECODER

This work shall consist of the furnishing and installing a Cornet iVDO Streamer 2/4 Decoder or equivalent. The unit includes the following features and shall meet the performance requirements listed below.

Video

Format:
NTSC color, B/W composite, 30 fps (29.97), 2:1 interlaced, compliant with IEA-170 PAL color, B/W, composite, 25 fps, 2:1 interlaced Compliant with CCIR 624 S-video, Composite BNC.

Resolution:
Horizontal and Vertical pixels: MPEG-2 & 4 NTSC: 720 X 480 D1, 704 X 480 4CIF, 352 X 240 CIF, 176 X 120 QCIF. MPEG-2 & 4 PAL: 720 X 576, 704 X 576, 352 X 288, 176 X 144.

Frame Rate:
MPEG-4: 1, 2, 3, 4, 5, 6, 7, 10, 15, and 30 fps (NTSC) 1, 2, 3, 4, 5, 6, 7, 10, 15, and 25 fps (PAL) MPEG-2: 30 fps (NTSC), 25 fps (PAL)

Conformance:
MPEG-2 Compliant with ISO/IEC 13818-1, 2 MP @ ML
MPEG-4 Compliant with ISO/IEC 14496

Video Parameters:
Brightness, contrast, hue, saturation, and sizing

Video Latency:
Less than 200 msec @ 5 Mbp end-to-end

Video Bandwidth:
1.5 Mbps to 10 Mbps for MPEG-2, 64 Kbps to 5 Mbps for MPEG-4. Bandwidth increments are user selectable. The default bandwidth is set to 4 Mbps for MPEG-2 and to 1 for MPEG-4.

Connectors:
BNC (f) 75 Ω unbalanced for composite, S-video connector, two stereo 3.5 mm jacks for audio in and audio out.

Serial Port

Ports:
Two EIA-232/422/485

Standard Data Rates:
From 1,200 bps to 115,200 bps

Port communications:
Encoder serial to decoder derail, IP socket to encoder/decoder serial port

Protocol:
UDP and TCP/IP

Contact Closure

Network Protocols:
RTTP, UDP, TCP/IP, HTTP, IGMP.V2, ICMP, ARP, DHCP
IP Packets:
Unicast and multicast (IGMP V2), adjustable packet payload size

Mechanical and Environmental

Temperature
operating- -40 degrees Celsius to 75 degrees Celsius (-40 degrees Fahrenheit to 167 degrees Fahrenheit)
storage: -40 degrees Celsius to 75 degrees Celsius (-49 degrees Fahrenheit to 186 degrees Fahrenheit)
Humidity: 10% - 95% non-condensing

Standalone Enclosure Specifications

Power:
110VAC/220VAC 50-60HZ, 20 Watts, Temp: UL approved with encoder and decoder to 75 degrees Celsius

This work shall be paid for as part of the contract unit price each for CLOSED CIRCUIT TELEVISION CAMERA SYSTEMS which price shall be payment in full for furnishing and installing a closed circuit television camera system, with necessary connections and adjustments for proper operations.

CONFIGURE DIGITAL VIDEO ENCODER AND DIGITAL VIDEO DECODER

The Contractor is responsible for installing, programming, configuring, and providing all ancillary cabling for complete operation and compatibility with the WIDE AREA NETWORK. The DEPARTMENT will provide the Cornet CDX350T and Cornet CDX350R units. The following information is provided for information only. This unit includes the features and meets the performance requirements listed below:

- MPEG-1 and MPEG-2 encoding at 3, 4, 6 Mbps (selectable); GOP I, IP, IPB, IPBB support, 30 fps
- 75 ohm BNC Input (Baseband Video)
- Low end-to-end latency < 400 msec.
- Formats compressed video data stream into 1 to 4 T1/E1 or fractional T1/E1 signals
- 10/100 Base-T Ethernet LAN network compatible
- SNMP network management with RMON

- Configuration control via a web browser, control software, Telnet, or console port
- Supports RTP and UDP
- NTSC input
- Minimum of two configurable serial channel RS232 or RS422

The cost of this work shall be paid for at the contract unit price lump sum for CONFIGURE DIGITAL VIDEO ENCODER AND DIGITAL VIDEO DECODER, which price shall be payment in full for installing, configuring, programming, and placing into operation the digital video encoder or digital video decoder with the video transmission system with all necessary hardware, cabinets, connections and adjustments for proper operations.

SURGE ARRESTORS

Surge Arrestor supplied for this project shall be EDCO Inc., Model EMC-240B or equivalent. They shall be of modular design consisting of a permanently mounted and wired base, and a removable circuit package. They shall be designed, located, and installed in a manner permitting removal and replacement without affecting normal operation.

An additional surge arrestor Model ACP100 BWN3 (or approved equal) shall be included to provide a second level of surge protection.

The cost of this work will be included in the cost of CLOSED CIRCUIT TELEVISION CAMERA SYSTEM, which price shall be payment in full for furnishing and installing a closed circuit television camera system, with necessary connections and adjustment for proper operations.

FIBER OPTIC CABLE IN CONDUIT, 72 COND. S.M. F.O.

This work shall consist of furnishing and installing fiber optic cable in conduit as indicated on the plans.

The cable shall be Corning Cable Systems Type 072EW4-T3100A20 or equivalent (ALTOS fiber optic cable, maximum attenuation of 0.35dB/km at 1310nm, 0.25dB/km at 1550nm).

A minimum of 40 feet of slack cable shall be provided for each handhole nearest the controller cabinet, 20 feet of slack shall be in each controller cabinet and 30 feet of slack in all other handholes. The controller cabinet slack cable shall be stored as directed by the Engineer. All other fiber optic cables shall be clearly labeled.

Basis of Payment: This work shall be paid for at the contract unit price per foot for FIBER OPTIC CABLE IN CONDUIT, 72 COND. S.M. F.O. which will be payment in full for furnishing and installing all single mode fiber optic cable in conduit.

Note that the 2-2100’ coils of fiber optic cable, as shown on the plans, shall be in the Pier 1 Abutment Room by March 31, 2007 for installation by others into MoDot conduit.

FIBER OPTIC TERMINATION IN CABINET

This work shall consist of terminating existing fibers, new fibers and furnishing and installing fiber optic patch panels, cable management hardware and distribution enclosures in field cabinets or buildings as indicated on the plans. The single mode fibers shall be terminated at each location per the schedule in the plans. All fiber optic cabling shall be clearly labeled. Existing multi-mode fibers located in the ground field controller cabinet and junction boxes that are bare, shall also be terminated and included in the cost of this pay item.

A Corning PCH-04U closet connector housing or equivalent shall be provided at each termination point. Required SC simplex connectors shall be included at no additional cost to the Department. All fiber optic patch cables required to light all terminations shall be installed at no additional cost to the Department.

Perform appropriate tests and provide documentation according to the FIBER OPTIC CABLE SPLICING, TESTING AND ACCEPTANCE STANDARDS, AND PROCEDURES special provision.

Basis of Payment: This work shall be included in the cost of FIBER OPTIC CABLE IN CONDUIT, 72 COND. S.M. F.O. and FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 6F, respectively, which will be payment in full for splicing all required multi-mode and single-mode fibers, testing and supplying and installing new patch panels, cable management hardware, and distribution enclosures at a cabinet or the TMC building location.

FIBER OPTIC SPLICING IN CABINET

This work shall consist of splicing existing fibers, new fibers, and furnishing and installing distribution enclosures in field cabinets or buildings as indicated on the plans. The single mode fibers shall be spliced at each location per the schedule in the plans. All splices shall be fusion spliced in an environmentally controlled enclosure and no mechanical splicing shall be accepted. All fiber optic cabling shall be clearly labeled.

Corning PCH-04U closet connector housings and splice tray kits or equivalent shall be provided at each splice point as necessary.

Perform appropriate tests and provide documentation according to the FIBER OPTIC CABLE SPLICING, TESTING AND ACCEPTANCE STANDARDS, AND PROCEDURES special provision.

Basis of Payment: This work shall be included in the cost of FIBER OPTIC CABLE IN CONDUIT, 72 COND. S.M. F.O. and FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 6F, respectively, which will be payment in full for terminating all required multi-mode and single-mode fibers, testing, and supplying and installing new cable management hardware, splice trays, and distribution enclosures at a cabinet or the TMC building location.

FIBER OPTIC TRACER CABLE

In order to trace the fiber optic cable after installation, a black insulated copper tracer cable No. 14 shall be installed with the fiber optic cable where there is no other electric cable per the applicable portions of Section 873 of the Standard Specifications. The tracer cable splices are allowed in handhole, only. All tracer splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable splice shall be per Section 870 of the Standard Specifications. Conductors shall be spliced in a rigid mold. Rosin-core solder shall be used.

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

WIDE AREA NETWORK

This work shall consist of installing, configuring and placing into operation the wide area network devices furnished for this project, and reconfiguring existing network devices so that the overall network operates properly. The Contractor may replace components of the existing system at no additional cost to the Department. All work required to modify the existing network and in order to integrate the new equipment to be installed as referenced below with the existing system is included in the unit cost of WIDE AREA NETWORK. Any equipment that is to be replaced shall require written authorization by the Engineer. The appropriate wire, cables, connectors, ancillary devices for equipment connection and operation are also included in this pay item. This system shall consist of the following equipment:

1) New Cisco 2955 switches
2) New Cisco 500 switches
3) New Cisco 3750 switches

A new WS5486GBIC card will be provided by the Department for location MP5570008.0 controller fiber 7 and 8 to the west.

The existing network hardware and configuration was installed on the previous project (ITS 2006-01). Specific network configuration information will be made available to the successful bidder, and shall remain confidential.

This work will be paid for at the contract unit price lump sum for WIDE AREA NETWORK, which price shall be payment in full for installing, configuring and placing into operation the wide area network devices furnished for this project, and reconfiguring existing network devices so that the overall network operates properly.

3750G-12S LAYER 3 SWITCH

This work shall consist of furnishing and installing a Layer 3 switch. The layer 3 switch shall be a Cisco Model Number WS-C3750G-12S. All components shall be tested and certified that they operate.

This work will be paid for at the contract unit price each for 3750G-12S LAYER 3 SWITCH, which price shall be payment in full for furnishing, installing, and testing all equipment.

2955 LAYER 2 SWITCH

This work shall consist of furnishing and installing a Layer 2 switch and 24 VDC power supply. The layer 2 switch shall be a Cisco Model Number WS-C2955S-12. The 24 VDC shall be rated at 100 Watts or more and shall meet or exceed the environmental performance of the WS-C2955S-12. All components shall be tested and certified that they operate.

This work will be paid for at the contract unit price each for 2955 LAYER 2 SWITCH, which price shall be payment in full for furnishing, testing and delivering all equipment.

500G LAYER 2 SWITCH

This work shall consist of furnishing and installing a Layer 2 switch and 24 VDC power supply. The layer 2 switch shall be a Cisco Model Number WS-CI500G-12TC. The 24 VDC shall be rated at 100 Watts or more and shall meet or exceed the environmental performance of the WS-CI500G-12TC. All components shall be tested and certified that they operate.

This work will be paid for at the contract unit price each for 500G LAYER 2 SWITCH, which price shall be payment in full for furnishing, testing and delivering all equipment.

SFP-GE-L SFP MODULE

This work shall consist of furnishing and installing an SFP Module. The SFP Module shall be a Cisco Model Number SFP-GE-L. All components shall be tested and certified that they operate.

This work will be paid for at the contract unit price each for SFP-GE-L SFP MODULE, which price shall be payment in full for furnishing, testing and delivering all equipment.

SFP-GE-Z SFP MODULE

This work shall consist of furnishing and installing an SFP Module. The SFP Module switch shall be a Cisco Model Number SFP-GE-Z. All components shall be tested and certified that they operate.

This work will be paid for at the contract unit price each for SFP-GE-L SFP MODULE, which price shall be payment in full for furnishing, testing and delivering all equipment.

GLC-T SFP MODULE

This work shall consist of furnishing and installing an SFP Module. The SFP Module switch shall be a Cisco Model Number GLC-T. All components shall be tested and certified that they operate.

This work will be paid for at the contract unit price each for GLC-T SFP MODULE, which price shall be payment in full for furnishing, testing and delivering all equipment.

GLC-FE-100FX SFP MODULE

This work shall consist of furnishing and installing an SFP Module to be used for connecting multi-mode fiber. The SFP Module which shall be a Cisco Model Number GLC-FE-100FX. All components shall be tested and certified that they operate.

This work will be paid for at the contract unit price each for GLC-FE-100FX MODULE, which price shall be payment in full for furnishing, testing and delivering all equipment.

GLC-FE-100LX SFP MODULE

This work shall consist of furnishing and installing an SFP Module to be used for connecting single-mode fiber. The SFP Module switch shall be a Cisco Model Number GLC-FE-100LX. All components shall be tested and certified that they operate.

This work will be paid for at the contract unit price each for GLC-FE-100LX MODULE, which price shall be payment in full for furnishing, testing and delivering all equipment.

WIRED COMMUNICATION DATA CONVERTOR

The Wired Communication Data Converter shall be a Wavetronix Click! 301 or equivalent. The data converter shall be capable of converting half-duplex serial communication to Ethernet and vice versa. It shall include multiple communications ports and use either Ethernet or serial interfaces to determine baud rates.

It shall have the following physical and operating characteristics:

Weight:	.20 lbs
Dimensions;	11.4 cm x 10.2 cm x 2.5 cm (4.5 in. x 4 in. x 0.9in.)
Ambient Operating Temp:	-34 degrees C to +74 degrees C
Humidity:	Up to 95% RH
Input Voltage Range:	10-30 VDC
RS-485 Voltage Range:	-9V to +14 V
RS-232 Voltage Range:	+/- 25V
Baud Rate Setup:	Auto-detected
Turn Around Time:	1.1 mS
Power Consumption:	<1 W

Communications:	Ethernet, RS-485 and RS-232 DTE
Baud Rates:	2 RS-485 Ports- 9600bps, 19200 bps, 38400 bps, 57600 bps 1 RS-232 Port- Up to 115200 bps

This work will be paid for at the contract unit price each for WIRED DATA COMMUNICATION CONVERTER, which price shall be payment in full for furnishing, installing, programming and configuring a Wired Data Communication Converter, with necessary connections and adjustments for proper operations to the satisfaction of the Engineer.

MEDIA CONVERTER

This work shall consist of installing and furnishing a field hardened, industrial-grade fiber optic to Ethernet media converter. The media converter shall be a Moxa IMC-101-M-SC model or equivalent. All components shall be tested and certified that they operate.

The unit shall have the following components:

- Redundant DC power inputs
- Relay output alarm activation by link disconnection or power failure
- Copper Port: 10/100BaseT(x) auto negotiation speed and auto MDI?MDIX connection
- LED Indicator: Power, Faults, 10/100, Full/Half duplex, collision
- DIP switch: 100BaseFX Full/Half duplex selection, port break alarm mask
- Alarm contact: One relay output with current carrying capacity of 1A @ 24 VDC
- IEEE802.3, 802.3u, Link Fault Pass-Through
- DIN-Rail mountable
- Operating Temperature 0 to 60 deg C (32 to 140 deg F)
- Warranty: 5-year labor and parts from date contract is accepted.

This work will be paid for at the contract unit price each for MEDIA CONVERTER, which price shall be payment in full for furnishing, installing, and testing all equipment and all necessary cabling and mounting accessories.

MODIFY EXISTING CONTROLLER CABINET TYPE A1

This work shall consist of modifying an existing communications cabinet in order to provide for replacing the existing Econolite Autoscope Solo Pro ACIP1 communications interface panel with a new Econolite Autoscope Solo Pro ACIP1E and disconnecting and reinstalling power supplies and power distribution/surge suppression (if required). The Contractor shall install all equipment as specified in the communications design and per the manufacturers' recommendations. Cabinet equipment shall be deactivated, removed from the cabinet, and reinstalled as necessary for all required equipment to fit into the existing controller cabinet or as directed by the Engineer. The Contractor is responsible for protecting all equipment in the cabinet during installation and shall repair or replace any damaged equipment during the course of the cabinet modification. The Contractor shall use careful planning and preparation to ensure that existing equipment functionality down time is minimized. The Contractor shall submit a "Modify Existing

Controller Cabinet plan" to the Engineer one (1) week prior to turning off existing equipment for modification that details what work has been completed and is ready to be connected and what work remains to be completed prior to new system turn-on. This plan shall be approved by the Engineer prior to turning off any existing equipment.

Any removed equipment shall remain the property of the State of Illinois. Upon removal of the existing ITS equipment specified above, the Contractor shall deliver such equipment to the Illinois Department of Transportation, Regional Complex, 1102 Eastport Plaza Drive, Collinsville, Illinois 62234, ITS Equipment Room #120B. The location of any interim storage facility, prior to equipment delivery, shall be indoors and approved by the Engineer.

The circuit breaker/surge suppression assembly shall be moved and/or upgraded in order to accommodate the installation of the other components. This assembly may remain in place (unchanged) if sufficient space and capacity is provided to the other components.

Each cabinet in the system shall be as identical as practical.

Basis of Payment: This work shall be paid for at the contract unit price each for MODIFY EXISTING CONTROLLER CABINET TYPE A1 providing and installing new circuit breakers (if needed), furnishing and installing new ACIP1E panel, removal of existing equipment and all necessary mounting hardware and power cable and all labor and incidental work necessary to complete this work.

MODIFY EXISTING CONTROLLER CABINET TYPE A4

This work shall consist of modifying an existing communications cabinet in order to provide for replacing the existing Econolite Autoscope Solo Pro ACIP4 communications interface panel with a new Econolite Autoscope Solo Pro ACIP4E and disconnecting and reinstalling power supplies and power distribution/surge suppression (if required). The Contractor shall install all equipment as specified in the communications design and per the manufacturers' recommendations. Cabinet equipment shall be deactivated, removed from the cabinet, and reinstalled as necessary for all required equipment to fit into the existing controller cabinet or as directed by the Engineer. The Contractor is responsible for protecting all equipment in the cabinet during installation and shall repair or replace any damaged equipment during the course of the cabinet modification. The Contractor shall use careful planning and preparation to ensure that existing equipment functionality down time is minimized. The Contractor shall submit a "Modify Existing Controller Cabinet plan" to the Engineer one (1) week prior to turning off existing equipment for modification that details what work has been completed and is ready to be connected and what work remains to be completed prior to new system turn-on. This plan shall be approved by the Engineer prior to turning off any existing equipment.

The circuit breaker/surge suppression assembly shall be moved and/or upgraded in order to accommodate the installation of the other components. This assembly may remain in place (unchanged) if sufficient space and capacity is provided to the other components.

Any removed equipment shall remain the property of the State of Illinois. Upon removal of the existing ITS equipment specified above, the Contractor shall delivery such equipment to the Illinois Department of Transportation, Regional Complex, 1102 Eastport Plaza Drive,

Collinsville, Illinois 62234, ITS Equipment Room #120B. The location of any interim storage facility, prior to equipment delivery, shall be indoors and approved by the Engineer.

Each cabinet in the system shall be as identical as practical.

Basis of Payment: This work shall be paid for at the contract unit price each for MODIFY EXISTING CONTROLLER CABINET TYPE A4 providing and installing new circuit breakers (if needed), furnishing and installing new ACIP4E panel, removal of existing equipment and all necessary mounting hardware and power cable and all labor and incidental work necessary to complete this work.

MODIFY EXISTING CONTROLLER CABINET TYPE B

This work shall consist of modifying an existing controller cabinet to provide for the installation of Cisco WS-C2955C-12 Switch, fiber termination/splice panel/kit, and disconnecting and (re)installing power supplies and power distribution/surge suppression (if required). The Contractor shall install all equipment as specified in the communications design and per the manufacturers' recommendations. Cabinet equipment shall be deactivated, removed from the cabinet, and reinstalled as necessary for all required equipment to fit into the existing controller cabinet or as directed by the Engineer. The Contractor is responsible for protecting all equipment in the cabinet during installation and shall repair or replace any damaged equipment during the course of the cabinet modification. The Contractor shall use careful planning and preparation to ensure that existing equipment functionality down time is minimized. The Contractor shall submit a "Modify Existing Controller Cabinet plan" to the Engineer one (1) week prior to turning off existing equipment for modification that details what work has been completed and is ready to be connected and what work remains to be completed prior to new system turn-on. This plan shall be approved by the Engineer prior to turning off any existing equipment.

The circuit breaker/surge suppression assembly shall be moved and/or upgraded in order to accommodate the installation of the other components. This assembly may remain in place (unchanged) if sufficient space and capacity is provided to the other components.

Any removed equipment shall remain the property of the State of Illinois. Upon removal of the existing ITS equipment specified above, the Contractor shall deliver such equipment to the Illinois Department of Transportation, Regional Complex, 1102 Eastport Plaza Drive, Collinsville, Illinois 62234, ITS Equipment Room #120B. The location of any interim storage facility, prior to equipment delivery, shall be indoors and approved by the Engineer.

Each cabinet in the system shall be as identical as practical.

Basis of Payment: This work shall be paid for at the contract unit price each for MODIFY EXISTING CONTROLLER CABINET TYPE B providing and installing new circuit breakers (if needed), all necessary mounting hardware and power cable and all labor and incidental work necessary to complete this work.

MODIFY EXISTING CONTROLLER CABINET TYPE C

This work shall consist of modifying an existing controller cabinet to provide for the reconfiguration of existing Cornet CDX-350 DVE video encoder from T1 to Ethernet configuration and disconnecting and reinstalling power supplies and power distribution/surge suppression (if required). The Contractor shall install all equipment as specified in the communications design and per the manufacturers' recommendations. Cabinet equipment shall be deactivated, removed from the cabinet, and reinstalled as necessary for all required equipment to fit into the existing controller cabinet or as directed by the Engineer. The Contractor is responsible for protecting all equipment in the cabinet during installation and shall repair or replace any damaged equipment during the course of the cabinet modification. The Contractor shall use careful planning and preparation to ensure that existing equipment functionality down time is minimized. The Contractor shall submit a "Modify Existing Controller Cabinet plan" to the Engineer one (1) week prior to turning off existing equipment for modification that details what work has been completed and is ready to be connected and what work remains to be completed prior to new system turn-on. This plan shall be approved by the Engineer prior to turning off any existing equipment.

The circuit breaker/surge suppression assembly shall be moved and/or upgraded in order to accommodate the installation of the other components. This assembly may remain in place (unchanged) if sufficient space and capacity is provided to the other components.

Any removed equipment shall remain the property of the State of Illinois. Upon removal of the existing ITS equipment specified above, the Contractor shall delivery such equipment to the Illinois Department of Transportation, Regional Complex, 1102 Eastport Plaza Drive, Collinsville, Illinois 62234, ITS Equipment Room #120B. The location of any interim storage facility, prior to equipment delivery, shall be indoors and approved by the Engineer.

Each cabinet in the system shall be as identical as practical.

Basis of Payment: This work shall be paid for at the contract unit price each for MODIFY EXISTING CONTROLLER CABINET TYPE C providing and installing new circuit breakers (if needed), all necessary mounting hardware and power cable and all labor and incidental work necessary to complete this work.

MODIFY EXISTING CONTROLLER CABINET TYPE D

This work shall consist of modifying an existing controller cabinet to provide for the installation of media converter and disconnecting and (re)installing power supplies and power distribution/surge suppression (if required). The Contractor shall install all equipment as specified in the communications design and per the manufacturers' recommendations. Cabinet equipment shall be deactivated, removed from the cabinet, and reinstalled as necessary for all required equipment to fit into the existing controller cabinet or as directed by the Engineer. The Contractor is responsible for protecting all equipment in the cabinet during installation and shall repair or replace any damaged equipment during the course of the cabinet modification. The Contractor shall use careful planning and preparation to ensure that existing equipment functionality down time is minimized. The Contractor shall submit a "Modify Existing Controller

Cabinet plan" to the Engineer one (1) week prior to turning off existing equipment for modification that details what work has been completed and is ready to be connected and what work remains to be completed prior to new system turn-on. This plan shall be approved by the Engineer prior to turning off any existing equipment.

The circuit breaker/surge suppression assembly shall be moved and/or upgraded in order to accommodate the installation of the other components. This assembly may remain in place (unchanged) if sufficient space and capacity is provided to the other components.

Any removed equipment shall remain the property of the State of Illinois. Upon removal of the existing ITS equipment specified above, the Contractor shall delivery such equipment to the Illinois Department of Transportation, Regional Complex, 1102 Eastport Plaza Drive, Collinsville, Illinois 62234, ITS Equipment Room #120B. The location of any interim storage facility, prior to equipment delivery, shall be indoors and approved by the Engineer.

Each cabinet in the system shall be as identical as practical.

Basis of Payment: This work shall be paid for at the contract unit price each for MODIFY EXISTING CONTROLLER CABINET TYPE D providing and installing new circuit breakers (if needed), all necessary mounting hardware and power cable and all labor and incidental work necessary to complete this work.

MODIFY EXISTING CONTROLLER CABINET TYPE E

This work shall consist of modifying an existing controller cabinet to provide for the installation of serial to Ethernet converter and disconnecting and (re)installing power supplies and power distribution/surge suppression (if required). The Contractor shall install all equipment as specified in the communications design and per the manufacturers' recommendations. Cabinet equipment shall be deactivated, removed from the cabinet, and reinstalled as necessary for all required equipment to fit into the existing controller cabinet or as directed by the Engineer. The Contractor is responsible for protecting all equipment in the cabinet during installation and shall repair or replace any damaged equipment during the course of the cabinet modification. The Contractor shall use careful planning and preparation to ensure that existing equipment functionality down time is minimized. The Contractor shall submit a "Modify Existing Controller Cabinet plan" to the Engineer one (1) week prior to turning off existing equipment for modification that details what work has been completed and is ready to be connected and what work remains to be completed prior to new system turn-on. This plan shall be approved by the Engineer prior to turning off any existing equipment.

The circuit breaker/surge suppression assembly shall be moved and/or upgraded in order to accommodate the installation of the other components. This assembly may remain in place (unchanged) if sufficient space and capacity is provided to the other components.

Any removed equipment shall remain the property of the State of Illinois. Upon removal of the existing ITS equipment specified above, the Contractor shall deliver such equipment to the Illinois Department of Transportation, Regional Complex, 1102 Eastport Plaza Drive, Collinsville, Illinois 62234, ITS Equipment Room #120B. The location of any interim storage facility, prior to equipment delivery, shall be indoors and approved by the Engineer.

Each cabinet in the system shall be as identical as practical.

Basis of Payment: This work shall be paid for at the contract unit price each for MODIFY EXISTING CONTROLLER CABINET TYPE E providing and installing new circuit breakers (if needed), all necessary mounting hardware and power cable and all labor and incidental work necessary to complete this work.

LIGHT POLE, STEEL, 45 FT. WITH CAMERA LOWERING SYSTEM

GENERAL DESCRIPTION

The camera lowering system shall be designed to support and lower the closed circuit television camera, lens, housing, PTZ mechanism, cabling, connectors and other supporting field components included in this contract without damage or causing degradation of camera operations. The camera lowering system device and the pole are interdependent; and thus, must be considered a single unit or system. The lowering system shall consist of a pole, suspension contact unit, divided support arm, and a pole adapter for attachment to a pole top tenon, pole top junction box, and camera connection box. The divided support arm and receiver brackets shall be designed to self-align the contact unit with the pole center line during installation and insure the contact unit cannot twist under high wind conditions. Round support arms are not acceptable. The camera-lowering device shall withstand wind forces of 100mph with a 30 percent gust factor using a 1.65 safety factor. The lowering device manufacturer, upon request, shall furnish independent laboratory testing documents certifying adherence to the stated wind force criteria utilizing, as a minimum effective projected area, the actual EPA or an EPA greater than that of the camera system to be attached. The camera-lowering device to be furnished shall be the product of manufacturers with a minimum of three (3) years of experience in the successful manufacturing of camera lowering systems. The lowering device provider shall be able to identify a minimum of three (3) previous projects where the purposed system has been installed successfully for over a one-year period of time each. The camera lowering device shall be the $[MG]^2$ Model CLDMG2-HYP-045-ST-D or equivalent.

The lowering device manufacturer shall furnish a factory representative to assist the electrical contractor with the assembly and testing of the lowering system onto the pole assembly. The manufacturer shall furnish documentation certifying that the electrical contractor has been instructed on the installation, operation and safety features of the lowering device. The Contractor shall be responsible for providing applicable maintenance personnel “on site" operational instructions and three (3) copies of operations and maintenance manual.

SUSPENSION UNIT CONTACT

The suspension contact unit shall have a load capacity 200 lbs. with a 4 to 1 safety factor. There shall be a locking mechanism between the fixed and moveable components of the lowering device. The movable assembly shall have a minimum of 2 latches. This latching mechanism shall securely hold the device and its mounted equipment. The latching mechanism shall operate by alternately raising and lowering the assembly using the winch and lowering cable. When latched, all weight shall be removed from the lowering cable. The fixed unit shall have a heavy duty cast tracking guide and means to allow latching in the same position each time. The contact unit housing shall be weatherproof with a gasket provided to seal the interior from dust and moisture.

The prefabricated components of the lift unit support system shall be designed to preclude the lifting cable from contacting the power or video cabling. The Contractor shall supply internal conduit in the pole for the power and video cabling if required by the Engineer. The only cable permitted to move within the pole or lowering device during lowering or raising shall be the stainless steel lowering cable. All other cables must remain stable and secure during lowering and raising operations.

The female and male socket contact halves of the connector block shall be made of thermosetting synthetic rubber known as Hypalon. The female brass socket contacts and the male high conductivity brass pin contacts shall be permanently molded into the Hypalon body.

The current carrying male contacts shall be 1/8 inches in diameter. There shall be two (2) male contacts that are longer than the rest which will make first and break last providing optimum grounding performance. The number of contacts shall be 14 and the camera mounted thereto, shall be capable of performing all of its necessary functions on 14 contacts or less.

The current carrying female contacts shall be 1/8 inches I.D. All of the contacts shall be recessed 0.125" from the face of the connector. Cored holes in the rubber measuring 0.25" in diameter and 0.125" deep molded into the connector body are centered on each contact on the face of the connector to create rain-tight seals when mated with the male connector.

The wire leads from both the male and female contacts shall be permanently and integrally molded in the Hypalon body. The current carrying and signal wires shall be constructed of #18/1 AWG Hypalon jacketed wire.

The contacts shall be self-wiping with a shoulder at the base of each male contact so that it will recess into the female block, thereby giving a rain-tight seal when mated. The electrical contact connector must meet Mil Spec Q-9858 and Mil Spec I-45208.

LOWERING TOOL

The camera-lowering device shall be operated by use of the Department's existing portable lowering tool, a [MG]² Model LWR3-90 or equivalent.

MATERIALS

All pulleys for the camera lowering device and portable lowering tool shall have sealed, self lubricated bearings, oil tight bronze bearings, or sintered bronze bushings. The lowering cable shall be a minimum 1/8-inch diameter stainless steel aircraft cable with a minimum breaking strength of 1740 pounds with (7) strands of 19 wire each.

All electrical and video coaxial connections between the fixed and lowerable portion of the contact block shall be protected from exposure to the weather by a waterproof seal to prevent degradation of the electrical contacts. The electrical connections between the fixed and

movable lowering device components shall be designed to conduct high frequency data bits and one (1) volt peak-to-peak video signals as well as the power requirements for operation of dome environmental controls.

The interface and locking components shall be made of stainless steel and or aluminum. All external components of the lowering device shall be made of corrosion resistant materials, powder coated, galvanized, or otherwise protected from the environment by industry-accepted coatings to withstand exposure to a corrosive environment.

The camera junction box shall be cast ZA-12 (12% aluminum and 88% zinc) and weigh a minimum of 50 LBS to insure stability of camera during the raising and lowering operation. The camera junction box shall have two (2) fully gasketed doors to prevent water intrusion. The bottom of the camera junction box shall be equipped with a condensation/moisture exit system.

The Closed Circuit Television Camera System manufacturer shall provide weights and/or counterweights as necessary to assure that the alignment of pins and connectors are proper for the camera support to be raised into position without binding. The lowering unit will have sufficient weight to disengage the camera and its control components in order that it can be lowered properly.

The Closed Circuit Television Camera System manufacturer shall provide the power and signal connectors for attachment to the bare leads in the pole top and/or camera junction boxes.

The Closed Circuit Television Camera System manufacturer shall provide a mounting flange sufficient for mounting their respective camera assembly to the bottom of the Camera connection box.

CAMERA LOWERING SYSTEM STEEL POLE

DESIGN

Design shall be in accordance with the 1994 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals". Minimum Loading requirements shall be based on an isotach wind velocity for the area of installation according to 1994 AASHTO isotach wind chart with a 1.3 gust factor. Calculations and detailed drawings shall be submitted demonstrating compliance with the AASHTO specification.

FABRICATOR

The Fabricator shall be certified under Category I, "Conventional Steel Structures" as set forth by the American Institute of Steel Construction Quality Certification Program. Proof of this certification will be required prior to bid opening to ensure that the fabricator has the personnel, organization, experience, procedures, knowledge, equipment, capability and commitment to fabricate quality pole structures.

The Contractor shall submit shop drawings of the pole/lowering device for approval per Article 105.04 of the Standard Specifications and provide an affidavit from the pole manufacturer assuring that pole will accommodate the installation and operational requirements of the lowering device.

WELDING

All welding shall be in accordance with Sections 1 through 8 of the American Welding Society (AWS) D1.1 Structural Welding Code. Tackers and welders shall be qualified in accordance with the code. Tube longitudinal seam welds shall be free of cracks and excessive undercut, performed with automatic processes, and be visually inspected. Longitudinal welds suspected to contain defects shall be magnetic particle inspected. All circumferential butt-welded pole and arm splices shall be ultrasonically or radiographically inspected.

MATERIAL CERTIFICATION

All materials and products shall be manufactured in the United States of America, and comply with ASTM or AASHTO specifications. Mill certifications shall be supplied as proof of compliance with the specifications.

PERFORMANCE CALCULATIONS

The pole shall be designed to support the specified camera and accessories. Close consideration must be given to the effective projected area of the complete lowering system and camera equipment to be mounted on the pole along with the weight when designing the pole to meet the specified deflection performance criteria. The pole top deflection shall not exceed one inch in a 30-mph (non-gust) wind. The calculations shall include a pole, base plate, and anchor bolt analysis. The pole calculations shall be analyzed at the pole base, at 5-ft. pole intervals/segments and at any other critical pole section. At each of these locations, the following information shall be given:

- The pole's diameter, thickness, section modulus, moment of inertia, and cross sectional area.
- The centroid, weight, projected area, drag coefficient, velocity pressure, and wind force of each pole segment.
- The axial force, shear force, primary moment, total moment, axial stress, bending stress, allowable axial stress, allowable bending stress, and combined stress ratio (CSR).
- The pole's angular and linear deflection.

The pole shaft shall conform to ASTM A595 Grade A with minimum yield strength of 55 ksi or ASTM A572 with minimum yield strength of 65 ksi. The shaft shall be round or 16 sided with a four inch corner radius, have a constant linear taper of 0.14 in/ft, and contain only one longitudinal seam weld. Circumferential welded tube butt splices and laminated tubes are not permitted. Longitudinal seam welds within 6 inches of complete penetration pole to base plate welds shall be complete penetration welds. The shaft shall be hot dip galvanized per the requirements of the contract documents.

HANDHOLES

The handhole opening shall be reinforced with a minimum 2-inch wide hot rolled steel rim. The nominal outside dimension is 6 inches x 27 inches. The handhole shall have a tapped hole for mounting the portable winch thereto as shown on the drawings.

POLE TOP TENON

The pole shall have a custom plate mounted tenon that allows the field modification of the arm/camera orientation up to 360 degrees. With this design the DOT Engineer can make slight orientation modifications to the camera mount to allow optimum viewing in case of future road development, change in terrain or a change in the viewing needs priority. The tenon shall have mounting holes and slot as required for the mounting of the camera-lowering system. The tenon shall be of dimensions necessary to facilitate camera lowering device component installation. Each slot shall be parallel to the pole centerline for mounting the lowering device. For details, see applicable drawings.

CABLE SUPPORTS – ELECTRICAL CABLE GUIDES AND PARKING STAND (EYEBOLTS)

Top and bottom electrical cable guides shall be located within the pole aligned with each other as referenced in the drawings. One (1) cable guide shall be positioned 2 inches below the handhole and the other shall be positioned 1 inch directly below the top of tenon. A parking stand shall be positioned 2.75 inches below the top of the handhole.

BASE PLATES

Base plates shall conform to ASTM A36 or A572 Grade 50. Plates shall be integrally welded to the tubes with a telescopic welded joint or a full penetration butt weld with backup bar. Plates shall be hot dip galvanized per the requirements of the contract documents. Base Plates shall be Transformer base with breakaway coupling as shown in the detail sheets.

ANCHOR BOLTS

Anchor bolts shall conform to the requirements of ASTM F1554 Grade 55. The upper 12 inches of the bolts shall be hot dip galvanized per ASTM A153. Each anchor bolt shall be supplied with two (2) hex nuts and two (2) flat washers. The strength of the nuts shall equal or exceed the proof load of the bolts.

BASIS OF PAYMENT

This work shall be paid for at the contract unit price each for LIGHT POLE, STEEL, 45 FT. WITH CAMERA LOWERING SYSTEM, which price shall be payment in full for furnishing and installing the complete system as described above to the satisfaction of the Engineer.

FIBER OPTIC CABLE SPLICING, TESTING AND ACCEPTANCE STANDARDS, AND PROCEDURES

A. During construction, an Optical Domain Reflectometer (OTDR) shall be used to test splices and shall use an OTDR and a 1-km launch reel (for single mode fiber) or a 300 km launch reel (for multi-mode fiber) to test pigtail connectors. Such construction tests shall be uni-directional and performed at both 1310 nm and 1550 nm for single mode fiber and at 850 nm for multi-mode fiber. The Contractor may substitute another fiber optic testing device for an OTDR if the device specifications, testing parameters, and reason for using this type of device is submitted for review and approval by the Engineer.

B. If the loss value of two (2) connectors and the associated pigtail splice exceeds 1dB for single mode fiber or 2 dB for multi-mode fiber, then splice and re-splice until the loss value is 1.0 dB or less, or 2 dB or less, respectively.

C. If the loss value for a splice, when measured in one direction with an OTDR, exceeds 0.15 dB, break the splice and re-splice until the loss value is 0.15 dB or less, provided that, not able to achieve a loss value of 0.15 dB after three total splicing attempts, then the maximum loss value shall be 0.3 dB.

D. After end-to-end connectivity has been established on the fibers during construction the following shall be completed:

   a. bi-directional end-to-end tests
   b. test continuity to confirm that no fibers have crossed at any splice points
   c. record loss measurements using a light source and a power meter
   d. take OTDR traces and record splice loss measurements

E. Bi-directional end-to-end tests and OTDR traces shall be performed at both 1310 nm and 1550 nm for single mode fiber and at 850 nm for multi-mode fiber. All losses for each splice point shall be measured, verified, and averaged in both directions.

F. ODTR Equipment and Settings
   The Contractor shall use OTDR equipment and setting that are in the Engineer's opinion, suitable for performing accurate measurements of the fiber.

G. Acceptance Test Deliverables
   The Contractor shall provide data sheets or computer media, in format that is readily accessible to the Department, containing the following information for the relevant fibers and cable segments for approval prior to connecting any fiber optic hardware:

   a. Verification of end-to-end fiber continuity with power level readings for each fiber taken with a light source and power meter.
   b. Verification that the loss at each splice point is below 0.3 dB.
   c. The final bi-directional OTDR test data, with distances.
   d. Cable manufacturer, cable type (buffer/ribbon), fiber type, cable reel number, number and distance of each section of cable between splice points.

The cost of performing the appropriate tests and providing the documentation shall be included in the cost of the FIBER OPTIC CABLE IN CONDUIT, 72 COND. S.M. F.O. and FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, 4F.

JUNCTION BOX, ALUMINUM, ATTACHED TO STRUCTURE

This work shall consist of work that is described in Section 813 of the Standard Specifications for an aluminum junction box.

This junction box shall be vertically hinged, shall have a standard traffic controller cabinet keyed lock integrated into the front door and shall meet NEMA Type 4X standards.

This work shall be paid at the contract unit price each for JUNCTION BOX, ALUMINUM, ATTACHED TO STRUCTURE, of the size specified, which price shall include all the work described in Article 813.04 of the Standard Specifications. The Contractor may, with the approval of the Engineer, use box size larger than indicated at no additional cost to the Department.

FIBER OPTIC UTILITY MARKER

Marking of the Fiber Optic In-ground conduit runs will be done to prevent future damage to the fiber backbone. The markers will be placed every 300 feet along the fiber run and at other important junctions, turns, or other areas as specified by the field engineer.

The markers shall adhere to the following minimum specifications:

The marker shall be a cylindrical marker mounted on a 3.5" O.D. post. The marker shall be comprised of polymer materials which are resistant to impact, ultraviolet light, ozone, or hydrocarbon damage. The post and marker shall remain impact resistant in temperatures of -20 degrees to 140 degrees F.

The marker shall incorporate a cylindrical tube construction. It shall be capable of permanent or temporary installation on a 3.5" O.D. tube and shall utilize an anchor barb below ground level to prevent rotation and removal. The marker shall have an outside diameter of 3.82 inches. The nominal wall thickness shall be 0.13 inches and the overall length shall be 18 inches.

The marker shall be colored red on top of orange. Red shall be from the top to halfway down the marker (9 inches) and then orange the remaining 9 inches. The marker shall be pigmented throughout its entire cross section and shall incorporate UV resistant materials to prevent fading or cracking in outdoor environments.

The marker graphics shall include the following: On the red portion of the marker in the vertical direction it shall say "Buried Cables" above the symbol for no digging. It shall have the same verbiage on the opposite side (180 degrees away). Ninety degrees from this, on both sides, shall be the verbiage "Danger", also in the vertical direction.

On the Orange portion of the marker in the horizontal direction and on two sides of the marker it shall incorporate the IDOT logo and the words, 'Illinois Department of Transportation". Directly below this it shall say, "Intelligent Transportation System". Below this it shall say, "Before digging, trenching, or pushing pipe in this vicinity, call 618-346-3233. Failure to comply will result in Legal Action." Directly below this, a horizontal line and then "MARKER ID NUMBER" with a blank space for the marker id number to be inserted in the field. The Contractor shall be responsible for adding the MARKER ID NUMBER based on the following template:

557007.84.01F

Where:

5570 = Interstate Designation
07.74 = Milepost number to nearest hundredth of mile
01 = Marker number
F = Fiber Marker

Directly below this again include the symbol for no digging and the words “Buried Cable”. All graphics shall consist of a solvent-based ink that is abrasive and UV resistant.

The marker shall exhibit good workmanship and shall be free of burns, discoloration, and other objectionable marks or defects, which affect appearance or serviceability.

The marker shall have a minimum tensile strength of 2700 pounds per square inch, as measured by ASTM D638 (specimen Type I with separation rate of two inches per minute.) The marker tensile strength shall not deviate more than 10 percent from the standard room temperature result when tested at both 140 degrees and -20 degrees F after a minimum of two (2) hours conditioning at the respective temperature.

The marker shall be a six foot post with an 18” marker attached and installed to a two foot burial depth. It shall be capable of withstanding at least one vehicle impact at 35 mph. The marker shall return upright within 15 degrees of vertical position within a maximum of 30 seconds from the time of impact. The warning legend shall be retained on the marker after each impact.

GPS Coordinates for every line marker placed will be measured. The coordinates shall be measured in geographic decimal degrees and recorded in a table provided to IDOT in both electronic and hard copy format. GPS coordinate data collection shall continue to fiber termination points at controller cabinets and to the TMC so all conduit and fiber runs are clearly identified. The conduit, fiber markers, handholes, and controller cabinets shall be located with an accuracy level of eighteen (18) inches. The fiber optic utility markers, conduit, handholes, and controller cabinets shall be distinguishable in the GPS locator device as they are collected, so they are clearly identified in the table provided to the Department.

This work shall be paid for at the contract unit price each for FIBER OPTIC UTILITY MARKER as described above.

FIBER OPTIC TRACER CABLE

In order to trace the fiber optic cable after installation, a black insulated copper tracer cable No. 14 shall be installed with the fiber optic cable where there is no other electric cable per the applicable portions of Section 873 of the Standard Specifications. The tracer cable splices are allowed in handhole, only. All tracer splices shall be kept to a minimum and shall incorporate maximum lengths of cable supplied by the manufacturer. The tracer cable splice shall be per Section 870 of the Standard Specifications. Conductors shall be spliced in a rigid mold. Rosin-core solder shall be used.

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

ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 2 3/C COPPER

All electric cable for the run from the service installation at Location 557004.4A.25D to the device location number 557004.8A.09C shall be NO. 2 3/C copper per Article 1076.04(d) of the Standard Specification.

Basis of Payment: The electric cable shall be paid for separately as ELECTRIC CABLE IN CONDUIT, No. 2 3/C, Copper per meter (foot), which price shall include all associated labor and material for installation.

ELECTRIC CABLE IN CONDUIT, COMM., NO. 18 6 PAIR

This work shall be in accordance with Section 873 of the Standard Specifications, except Article 1076.04(c) will include the following:

> "This cable shall have properties and of quality equivalent to or exceeding the manufacturers recommendation for bi-directional communication for the Autoscope Solo Pro II VIDEO VEHICLE DETECTION SYSTEM and proper communication for the RADAR DETECTION SYSTEM (i.e. Belden 9331)."

CONDUIT PUSHED, GALVANIZED STEEL
Effective: September 1, 1997 *Revised: January 1, 1998*

This item consists of furnishing and installing galvanized steel conduit under an existing roadway, driveway, or sidewalk.

Galvanized steel conduit shall meet the requirements specified in Section 810 of the Standard Specifications.

The Contractor will have the option of substituting PVC conduit utilizing the following method of installation, as an equal alternate.

The method used to install PVC conduit shall be as follows:

(1) A 32 mm (1-1/4") diameter or larger, solid steel rod shall be pushed under the existing roadway, driveway or sidewalk.

(2) The specified size of PVC conduit shall be attached to the rod via an expander/adapter.

(3) The PVC conduit shall be pulled into place.

In the event that a conduit run cannot be installed with three sincere attempts, as determined by the Engineer, compensation for the proposed conduit run shall be as follows:

(1) The Department will delete the contract specified method of payment for the subject conduit run.

(2) The Department will pay for the installation of the conduit run and the three unsuccessful attempts to install the conduit run, under Article 109.04 of the Standard Specifications on the force account basis.

(3) The Engineer will determine the method to be utilized to install the conduit run.

This item will be paid for at the contract unit price per meter (foot) for CONDUIT PUSHED, GALVANIZED STEEL of the size specified, which price shall be payment in full for furnishing and installing the conduit and fittings complete.

CONDUIT IN TRENCH 4” DIA., PVC TYPE C

This work shall consist of work that is described in Section 810 of the Standard Specifications.

All in ground 4” conduit used in the installation for the fiber backbone will be Opti-com Type C PVC with Opti-com 44R Ribbed Polyethylene Inner duct with four (4) 1.263” inside diameter ducts, or Carlon Multi Gard, Multi-Cell PVC Type C with four (4) 1.19” inside diameter ducts, or equivalent. Each innerduct shall be of a different color. The color shall be consistent throughout the system so that the white inner duct is always matched with white, blue with blue, etc. A pull tape shall be installed in each inner duct.

This work shall consist of furnishing and installing 4” conduit attached to structure shall be Opti-com Standard Type C with Opti-com 44R Ribbed Polyethylene Inner duct with 4 1.263” inside diameter ducts or equivalent, including all fittings and accessories at the locations specified on the plans.

The conduit shall comply with NEMA TC10 with the exception of 3" bell (6" bell is acceptable). "NEMA TC10" shall be stamped on all conduit.

This work shall be paid at the contract unit price per foot for CONDUIT IN TRENCH 4” DIA., PVC TYPE C.

CONDUIT ATTACHED TO STRUCTURE, 4” DIA., PVC TYPE C

This work shall consist of furnishing and installing 4” conduit attached to structure shall be Opti-com PVC Conduit TYPE C with Opti-com 44R Ribbed Polyethylene Inner duct with four (4) 1.263” inside diameter ducts or Carlon Multi Gard, Multi-Cell PVC Type C with four (4) 1.19” inside diameter ducts, or equivalent, including all fittings and accessories attached to supports at the locations specified on the plans.

Each innerduct shall be of a different color. The color shall be consistent throughout the system so that the white inner duct is always matched with white, blue with blue, etc. A pull tape shall be installed in each inner duct.

The conduit shall comply with NEMA TC10 with the exception of 3" bell (6" bell is acceptable). "NEMA TC10" shall be stamped on all conduit.

This work shall be paid at the contract unit price per foot for CONDUIT ATTACHED TO STRUCTURE, 4" DIA., PVC TYPE C.

Note that the 2-2100' coils of fiber optic cable, as shown on the plans, shall be in the Pier 1 Abutment Room by March 31, 2007, for installation by others into MoDot conduit.

CONFINED SPACE ENTRY

The #4 box girder and the Pier 1 and 6 box girder access areas of the Poplar Street Bridge (PSB) are considered confined spaces. The Contractor shall comply with all OSHA requirements relative to confined space entry. An oxygen deficient, toxic, explosive or flammable atmosphere may exist within this confined space. Atmosphere testing shall be conducted prior to entry and continuously while employees are working within a confined space. The Contractor shall inform the Resident of who will service as the rescue responder in an emergency and what system will be used to notify the responder that an emergency exists. Compliance with this Provision shall be considered included in the contract and no additional compensation will be allowed.

BOX GIRDER CONDUIT INSTALLATION

Description

This work consists of furnishing all materials and labor for the installation of a 2 ½" PVC conduit through the steel box girder to carry a fiber optic cable as shown in the plans. The fiber optic cable furnishing and installation is not included in this item.

Construction Requirements

The conduit should be furnished and installed per applicable portions of Section 811 of the Standard Specifications (Exposed Raceways). The conduit material should be as described in Article 1088.01(b) of the Standard Specifications.

10 in. x 10 in. x 3 in. junction boxes, of a material compatible with the conduit hangers, shall be installed at 750 ft. intervals on the conduit hangers per applicable portions of Section 813 (Junction and Pull Boxes). The junction box material may be non-metallic.

3 in. holes at the locations shown in the plans should be cored through the concrete wall at Piers 1 and 6, holes to be sealed after installation of conduit. 3 in. holes to be drilled through box girder end wall at Piers 1 and 6, rubber boots are to be used to seal hole after installation of conduit.

A flexible conduit to be placed at the expansion locations shown in the plans.

Hangers of the dimensions shown in the plans shall be attached to longitudinal stiffeners, at the specified spacing shown in the plans, using set screws. No welding or drilling will be allowed to attach the hangers to the stiffeners.

Basis of Payment

This work will be paid for at the contract unit price lump sum for BOX GIRDER CONDUIT INSTALLATION, which price shall include furnishing all components and labor for the installation of the conduit.

Note that the 2-2100' coils of fiber optic cable, as shown on the plans, shall be in the Pier 1 Abutment Room by March 31, 2007 for installation by others into MoDot conduit.

CONDUIT PUSHED, 4" DIA., PVC SCHEDULE 80

This work shall consist of furnishing and installing 4" conduit pushed and shall be Opti-com PVC Conduit Schedule 80 with Opti-com 44R Ribbed Polyethylene Inner duct with four (4) 1.263" inside diameter ducts or Carlon Multi Gard, Multi-Cell PVC Schedule 80 with four (4) 1.19" inside diameter ducts, or equivalent, including all fittings and accessories attached to supports at the locations specified on the plans. The method used to install this conduit shall be the method used in the CONDUIT PUSHED, GALVANIZED STEEL special provision.

Each innerduct shall be of a different color. The color shall be consistent throughout the system so that the white inner duct is always matched with white, blue with blue, etc. A pull tape shall be installed in each inner duct.

This work shall be paid at the contract unit price per foot for CONDUIT PUSHED, 4" DIA., PVC SCHEDULE 80.

CONDUIT ATTACHED TO STRUCTURE, 4" DIA., FIBERGLASS BULLET RESISTANT

This work shall consist of furnishing and installing 4" Opti-com Bullet Resistant Tubular with Opti-com 44R Ribbed Polyethylene Inner duct with four (4) 1.263" inside diameter ducts, or Carlon Multi Gard, Multi-Cell PVC Fiberglass Conduit Bullet Resistant with four (4) 1.19" inside diameter ducts, or equivalent, including all fittings and accessories attached to supports at the locations specified in the plans.

Each innerduct shall be of a different color. The color shall be consistent throughout the system so that the white inner duct is always matched with white, blue with blue, etc. A pull tape shall be installed in each inner duct. Expansion joints shall be installed every 150 feet for all unburied (exposed) conduit.

This work shall be paid at the contract unit price per foot for CONDUIT ATTACHED TO STRUCTURE, 4" DIA., FIBERGLASS BULLET RESISTANT.

HANDHOLES

Add the following to Section 814 of the Standard Specifications:

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

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

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

This work shall be paid for at the contract unit price each for the type and size as shown on the plans.

CONCRETE FOUNDATION, TYPE D (SPECIAL)

This work shall consist of furnishing and installing a concrete foundation for the installation of a controller base per Standard 878001 and applicable portions of Section 878 of the Standard Specifications, except an additional apron for the rear controller cabinet door shall be required. The ground rod shall conform to the applicable portions of Article 1087.02 with the following additions:

1. The ground rod shall be ¾” X 12’ long.

2. Four (4) ground rods shall be installed vertically in the concrete foundation and shall protrude 4” from the concrete foundation. Each of the four (4) ground rods shall be located inside of the controller cabinet and 3” diagonally from the cabinet corner.

3. A #6 AWG bare copper conductor shall be bonded to each rod with molded, sleeved, exothermic, N.E.C. approved field weld (Cadweld). One (1) of the rods and #6 AWG bare copper conductor shall be attached to the controller cabinet ground bus. The other unused ground conductors shall remain coiled along the bottom of the cabinet enclosure. The ground conductors shall be enough to reach ground bus. PRESSURE CONNECTORS OR CLAMPS ARE NOT ACCEPTABLE.

Anchor bolts, nuts, and washers are required this foundation.

This work shall be paid for at the contract unit price per foot of depth of CONCRETE FOUNDATION, TYPE D (SPECIAL), which price shall include all the work described in Article 878.05 of the Standard Specification.

CONTROLLER CABINET TYPE III, SPECIAL (AIR CONDITIONED)

The cabinet shall be in accordance with the applicable portions of Section 863 of the Standard Specifications.

The TYPE III CABINET shall be a NEMA Type 3R (66”H X 24”W X 30”L) with (i) front and rear door and (ii) four shelves including one for future use.

The cabinet shall have:

Two (2) Power panel surge protection (EDCO SHA-1250 or approved equal) (one per phase)
One (1) Surge protection (Model ACP100 BWN3 or approved equal)
Two (2) GFCI receptacles
Four (4) circuit breakers (2-15Amp single pole, 1 15Amp double pole and 1-20Amp double pole main)
Single point ground
Thermostatically controlled air conditioner (230 VAC 9.1/9.0 running amps Kooltronics Model K2A3C12RP47R)
Heater lamp(s)
Fluorescent lamp(s)
Door lock & keys in accordance with the Article 1085.47(3)c (cabinet door shall be fitted with a number 2 Corbin lock)
Necessary DIN rails for all DIN rail mountable equipment

Modifications to the panel and terminal facilities shall be made to the cabinet to meet the operating requirements of (i) the manufacturer of surveillance camera equipment, (ii) the field hardened controller equipment, (iii) utility companies, and (iv) video and radar detection equipment.

The cost of equipment housed inside the cabinet shall be included in the pay item for CLOSED CIRCUIT TELEVISION CAMERA SYSTEM and the pay items for the communications equipment (Wired Communication Data Converter, vehicle detectors, layer 3 switch, MPEG encoders, and fiber termination panel).

The cabinet shall be configured as similar to the existing modified cabinets as practical.

The cabinet shall be a fully integrated weatherproof enclosure complete with exterior air conditioner sufficient to cool the Controller Cabinet Type III to 80 degrees or less at all times, pre-fabricated and attached to the enclosure to ensure watertight seal. Cutting in or attaching an air conditioner to the outside of a separate standard traffic controller cabinet on site is not acceptable. The Contractor shall submit plan drawings for the overall cabinet design with the air conditioner, detailing how the interior of the cabinet will be protected from environmental elements. The Contractor must receive approval from the Engineer prior to procuring the cabinet/air conditioner assembly.

The Contractor shall provide two (2) each replacement filters, Part # 9121F and one (1) pint of filter recoating adhesive Part # A-16. The cost for the replacement filters and recoating adhesive shall be included in the unit price each for CONTROLLER CABINET TYPE III, SPECIAL (AIR CONDITIONED).

This work shall be paid for at the contract unit price each for CONTROLLER CABINET TYPE III, SPECIAL (AIR CONDITIONED).

CONTROLLER CABINET TYPE III, SPECIAL

The cabinet shall be in accordance with the applicable portions of Section 863 of the Standard Specifications.

The Type III CABINET shall be a NEMA Type 3R (46”HX24”WX20.25”L) with (i) front and rear door and (ii) four (4) shelves including one (1) for future use.

The cabinet shall have:

Two (2) Power panel surge protection (EDCO SHA-1250 or approved equal) (one (1) per phase)
One (1) Surge protection (Model ACP100 BWN3 or approved equal)
Two (2) GFCI receptacles
Four (4) circuit breakers (Two (2)-15Amp single pole, One (1) 15Amp double pole and One (1) 20 Amp double pole main)
Single point ground
Heater lamp(s)
Fluorescent lamp(s)
Door lock and keys in accordance with Article 1085.47(3)c (cabinet door shall be fitted with a Number 2 Corbin lock)
Necessary DIN rails for all DIN rail mountable equipment

Modifications to the panel and terminal facilities shall be made to the cabinet to meet the operating requirements of (i) the manufacturer of surveillance camera equipment, (ii) the field hardened controller equipment, (iii) utility companies, and (iv) video and radar detection equipment.

The cost of equipment housed inside the cabinet shall be included in the pay item for CLOSED CIRCUIT TELEVISION CAMERA SYSTEM and the pay items for the communications equipment (Wired Communication Data Converter, vehicle detectors, layer 2 switch, MPEG encoders and fiber termination panel).

The cabinet shall be configured as similar to the existing modified cabinets as practical.

This work shall be paid for at the contract unit price each for CONTROLLER CABINET TYPE III, SPECIAL.

RADAR DETECTION SYSTEM

This work shall consist of furnishing, installing, and placing into operation a Wavetronix SmartSensor™ in High Definition (HD™) or equivalent radar vehicle detection system. This system shall consist of the following components and adhere to the following installation procedures.

MOUNTING LOCATION AND INSTALLATION

The radar detector shall be mountable on a pole with the manufacturer's bracket. The device will be mounted on a new CCTV camera steel 45 foot camera pole with camera lowering device at locations 557005.2A.09C, 557003.2A.41C, and 557002.4A.05C and on a 30' steel pole at locations 557003.8A.24R and 557002.4W.25R. The operation of the camera lowering device shall not be effected by the installation of the radar detector unit and vice versa. The height of the detector unit shall be determined per the manufacturer's recommendation based on the lateral offset of the CCTV camera pole. The mounting height can be adjusted up to 3 feet in either direction to improve performance. The detector bracket shall be attached to the pole with stainless steel straps. Silicon dielectric compound shall be applied to the detector unit base before attaching it to the mounting bracket. Before tightening the bracket is should be aligned to +/- 2 degrees of perpendicular to the roadway and aimed at the detection area. A 25 pin connector cable is then attached to the unit. The connector cable should be strapped to the pole to prevent cable strain. The radar detector shall be connected to power and the communications equipment in the same cabinet that will house the electronics for the CCTV camera. It shall be connected to a surge detection device. The radar detection system shall include all equipment and devices recommended by the manufacturer for proper operation.

FUNCTIONAL REQUIREMENTS AND OPERATION

The radar detection system shall be capable of either Automatic configuration or manual configuration. The detector shall be capable of detecting up to ten (10) lanes of traffic simultaneously. The detection range shall be within a range of 9 feet to 250 feet. The detector shall be capable of measuring speed, occupancy, classification, and volume on the roadway. The unit must interface, communicate, and be fully compatible with the existing Wavetronix Data Collection System and Department's Advanced Traffic Management System software. Any additional work to ensure this full compatibility shall be included in the cost of the contract.

TRAINING AND INSTALLATION RADAR DETECTION SYSTEM

The suppliers of the RADAR VEHICLE DETECTION SYSTEM shall supervise the installation and testing of the equipment. A factory certified representative shall be present for the turn-on. In addition to the turn-on, the representative from the supplier shall be on-site for a minimum of two (2) days. The representative shall work with the other suppliers and representatives.

This representative shall be available for troubleshooting and if need be to meet with Department personnel and other suppliers for troubleshooting the project.

The cost of providing the factory certified representative and training of Department of Transportation personnel shall be included in the cost of the contract.

WARRANTY

The Contractor shall warranty all materials and workmanship including labor for a period of two years after the completion and acceptance of the installation, unless other warranty requirements prevail. The warranty period shall begin when the Contractor completes all construction obligations related to this item and when the components for this item have been

accepted, which shall be documented as the final completion date in the construction status report. This warranty shall include repair and/or replacement of all failed components via a factory authorized depot repair service. All items sent to the depot for repair shall be returned within two weeks of the date of receipt at the facility. The depot location shall be in the United States. Repairs shall not require more than two (2) weeks from date of receipt and the provider of the warranty shall be responsible for all return shipping costs. The depot maintainer designated for each component shall be authorized by the original manufacturer to supply this service.

A warranty certificate shall be supplied for each component from the designated depot repair site indicating the start and end dates of the warranty. The certificate shall be supplied at the conclusion of the acceptance test and shall be for a minimum of two (2) years after that point. The certificate shall name the Department as the recipient of the service. The Department shall have the right to transfer this service to other private parties who may be contracted to perform overall maintenance of the facility.

This work shall be paid for at the contract unit price each for RADAR VEHICLE DETECTION SYSTEM, which price shall be payment in full for furnishing and installing a Radar detection system compatible with installation procedures as described above, and including all cabling, surge protection and all ancillary hardware and materials, and all labor and incidental work necessary to complete this work.

VIDEO VEHICLE DETECTION SYSTEM

This work shall consist of furnishing, installing and placing into operation an AUTOSCOPE SOLO™ PRO II or equivalent latest model vehicle detection system, which detects vehicles by processing video images, analyzing in traffic flow within a detection zone, and generating alarms back to a remote monitoring station when incidents occur. The unit must interface, communicate, and be fully compatible with the existing Wavetronix Data Collection system and the Department's existing Advanced Traffic Management Software. Any additional work to accomplish full compatibility shall be included in the cost of the contract. All components shall be manufactured using a Quality System that is ISO9002 registered. Written confirmation of ISO9002 registration shall be available from the manufacturer prior to bid acceptance, if requested. The equipment supplier must have a minimum of three (3) years direct manufacturing experience in video vehicle detection systems and will be required to establish a record of proven field service for the systems hardware and software being provided for this contract. The equipment supplier also must have installed at least one (1) system of the type to be provided for this contract that has demonstrated at least one (1) year of satisfactory operation prior to the letting of this contract. The system hardware and copyrighted software to be provided by this contract shall have been fully operational for a period of at least three (3) months prior to the letting date of this contract. The equipment supplier shall furnish the Department with the location of the system*(s)* and the persons responsible, who shall be available for discussion and/or recommendation

The manufacturer of the traffic signal equipment must have product liability insurance of not less than $5 million in effect at the time of bid.

The system shall consist of:

1. Video cameras including enclosures, mounts, poles, mounting hardware and interface cable between the camera and both power cable and communication cable.
2. Ethernet compatible automatic camera control unit, and video/data transceiver (rack mounted), cabinet internal communications and power cabling and 10" environmentally hardened color monitor (American Dynamics AD9410 or equivalent).

CAMERA

The cameras will be located on an existing overhead sign truss or on elevated ramp parapet walls as designated on the plans. The configuration of the lenses for the cameras to be used shall meet the manufacturer's recommendation for proper operation at the designated locations. The Engineer per the manufacturer's representative's recommendation shall determine final orientation of the cameras at the designated locations. The Contractor shall provide detailed shop drawings for mounting brackets, poles and hardware for attaching the cameras at the designated locations.

The camera shall be equipped with a sunscreen and a faceplate heater to remove moisture from the camera's view. The camera's enclosure shall be to NEMA Type 4 specifications and pressurized with dry nitrogen to 5 +/- 1 psi. The camera shall operate satisfactorily over an ambient temperature range from -34 degrees C to +60 degrees C while exposed to precipitation and direct sunlight.

The useable video and resolvable features in the video image shall be produced when those features have luminance between 0.1 lux at night and 100,000 lux during daylight. The useable video and resolvable features in the video image shall be produced when the ratio of the luminance of the resolved features in any single frame is 300:1. An optical filter and appropriate electronic circuitry shall be included in the camera to suppress "blooming" effects at night.

The camera shall have electronic light level sensing optical control with high-speed imaging hardware capable of storing detector placements. The camera optics and electronics shall be directly controlled for optimal illumination. The camera shall be capable of processing the image against programmed simulated detectors (minimum of 20) and outputting the video image with the superimposed programmed simulated detectors with high quality and low noise degradation. The camera's maximum operation shall conform with the RS-170 (US) standard. The output shall have the ability to selectively show overlaid graphics indicating the current real-time detector zone state (filled/on or transparent/off) defined in the video. The camera's output shall be viewed with any compatible video-display device.

The camera's operation shall meet FCC class B requirements for electromagnetic interference. The camera shall have passed requirements for and received the CE mark.

All camera programming shall be available and accessible through the Ethernet network. All camera units shall be capable of being programmed from the TMC and the ITS Engineer's PC in real time.

The programming shall include:

1. Place, size and orient detection zones
2. Modify detector parameters for site geometry
3. Edit previously defined detector configurations
4. Adjust the detection zone size and placement
5. Add detectors for additional applications
6. Reprogram the camera for different traffic applications, changes in installation site geometry or traffic rerouting

Existing District's VGA and LCD monitors shall be able to show the detector zones superimposed on still images of traffic scenes.

The camera's programmable detector zone functions shall include:

1. Presence/passage detection of moving and stopped vehicles for traffic volume statistics output
2. Enabled detection based on the direction of travel and/or exclusively for stopped vehicles
3. Measured vehicle speed, length and classification
4. Generate a variety of alarms based on measured traffic conditions
5. Combine the output of several detectors with logical operators and optionally modify the cumulative state based on delay or extension timers and the state of any associated signal phase state.

6. Each of the detector types shall optionally be made in the live video output of the sensor.
   Revision numbers for the current camera hardware and software components in operation
   a. Title and comments for the specific detector configuration file in operation
   b. Date and time for:
      1. The last detector configuration file downloaded to the camera
      2. The last operation log clearance
      3. The opening and closing of communications with the camera
      4. The last power-up

INTERFACE CABLE

The interface cable shall connect the camera to both power cable and communication cable from the automatic camera control unit. The termination of this cable to the power cable and communication cable shall be in condulet attached to the ends of the conduit runs, moisture-resistant, electrical connectors approved by the Engineer.

AUTOMATIC CAMERA CONTROL UNIT

The automatic camera control unit shall provide:

1. 8 detector outputs for one camera to communicate real-time detection states and alarms
2. A single point of maintenance for supervisory application hardware to communicate and configure the connected camera and to access the camera's video

3. A single point of maintenance for the camera
4. Use output readbacks that shall notify the camera of output errors

The automatic camera control unit shall not require software or setup and shall self-configure on power-up.

The automatic camera control unit shall:

1. Physically conform to a NEMA TS2 Type C or D loop amplifier module and also be compatible with a 170-style input file
2. Plug directly into a NEMA TS2 Type C or D loop amplifier module or a 170-style input file
3. Perform all TS1 input/output and communication functions via an embedded micro-controller that shall utilize an on-board, Read-Only-Memory to store its operational and diagnostic software, which shall be programmed at the factory and shall not require any field configuration for the automatic camera control unit to operate
4. Use the detector rack or input file DC power pin and logic ground pin for power with a current draw less than 75 milliamperes and 1500 Vrms isolation between rack logic ground and the electrical service
5. Operate over an ambient temperature range from -30 to +165 degrees F
6. Provide status lights that reflect the real-time, on/off state of the assigned detector input and output; and indicate the operational health of the automatic camera control unit
7. High-energy transient protection for all of the interconnected hardware to NEMA TS2 standards
8. Ethernet ready and compatible

VIDEO/DATA TRANSMITTER

The video/data transmitter shall communicate the video and data signals from the junction box near the camera to the controller cabinet. The V/D transmitter shall have performance characteristics such that the best quality video and maximum data rate that the video vehicle detection system is capable of generating is not degraded.

The video/data transmitter component located in the controller cabinet shall have a BNC connector that outputs a NTSC video signal. It shall also have a standard connector for serial communication (RJ45 or DB9 / DB25). The video vehicle detection system shall include the cabling necessary to interface to the video encoder supplied under other pay items.

DOCUMENTATION

At the pre-construction meeting, the Contractor shall submit the following items for approval by the Engineer:

- Five (5) complete copies of the manufacturer's descriptive literatures and technical data for the equipment that will be installed on the contract. The descriptive literatures and technical data shall be adequate for determining whether the equipment meets the requirements of the plans and specifications. If the literature contains more than one (1) item, the Contractor shall indicate which item or items will be furnished.

- Five (5) complete copies of the shop drawings for the video vehicle detection system components showing in detail the fabrication thereof and the certified mill analyses of the materials used in the fabrication, anchor bolts and reinforcing materials.

Manuals shall be supplied for all equipment and components of the system. The system operator's manual and equipment manuals shall contain as a minimum the following:

Operator's manual which includes:

- Step-by-step system operating instructions.
- Theory of system operation
- Explanations and descriptions of data elements
- Recovery procedures to be followed in case of system malfunction
- Procedures for updating all elements of the data base
- Functional descriptions of all equipment in the system.

Equipment installation and maintenance manual for each controller and auxiliary device which includes:

- Technical descriptions of the operation of each system component
- Operating instructions for each type of equipment
- Theory of operation describing the interaction of equipment components and signal flow
- Detailed schematic diagrams
- Wiring diagrams that identify wire tagging used for all electrical connections
- Troubleshooting procedures to assist the maintenance staff in the identification and isolation of malfunctions
- Wiring diagrams for each location’s cabinet.

The Engineer will review the literature and furnish written approval or rejection to the Contractor within 15 calendar days after receipt of the literature. If the literature is rejected, the Contractor shall resubmit corrected literature within an additional 15 calendar days. Within 10 calendar days after receipt of written approval of any material or equipment, the Contractor shall order such material or equipment and shall furnish a copy of such order to the Engineer.

TRAINING

Two (2) days of training shall be provided as part of the contract.

The Contractor shall obtain from the manufacturers, warranties for all electronic and mechanical equipment. These warranties shall be transferred to the Department or other maintaining agencies upon the completion and acceptance of the project. The manufacturer shall warrant the equipment and all parts thereof against any defects of design, workmanship, and materials, and guarantee to promptly repair or replace, free of charge, any item that has become defective for reasons not proven to have been caused by negligence on the part the user or acts of a third party during the warranty period.

FINAL INSPECTION

The Contractor shall request a turn-on of the video vehicle detection system after all the equipment has been completely installed and fully operable and when the roadway is open to traffic. All required system hardware and software shall be completely installed and fully operable prior to the system inspection request. The inspection request must be made to the Engineer a minimum of three working days prior to the time of the requested inspection. During the inspection all items will be tested for proper operation according to the contract and to the satisfaction of the Engineer. The Contractor shall be provided with a punchlist indicating that the failed the inspection and require corrective measures. Upon the turn-on inspection, the Engineer may allow the Contractor to activate the video vehicle detection system in continuous operation but this shall not relieve the Contractor from correcting failed items. The Contractor shall notify the Engineer when all the failed items on the punchlist have been corrected and shall request an inspection. A turn-on inspection shall not be considered successful until each failed item on the punchlist has been corrected by the Contractor to operate according the contract and to the satisfaction of the Engineer.

After a successful turn-on inspection the video vehicle detection system shall enter a 30 calendar day minimum on site monitoring phase. During this phase the Contractor shall continuously monitor the operation of the video vehicle detection system. Failure of any component during the monitoring period, with the exception of expendable items such as bulbs and fuses, shall be reported to the Engineer and corrective measures shall be taken by the Contractor to the satisfaction of the Engineer. A failed item shall necessitate restarting the 30 calendar day monitoring period for its full 30 day duration beginning at the time when the failed item was corrected by the contractor to the satisfaction of the Engineer.

At the end of a 30 calendar day monitoring period the Contractor shall provide the Engineer with a monitoring log for the items covering the thirty calendar day period. The Contractor shall utilize the system software capabilities to store and generate monitoring logs. Upon review of the logs and further equipment performance testing to the satisfaction of the Engineer, he/she will issue a Video Vehicle Detection System Acceptance Notice or notify the Contractor in writing of the deficiencies.

This item will be paid for at the contract unit price each for:

VIDEO VEHICLE DETECTION SYSTEM, PARAPET MOUNTED

The price shall be payment in full for furnishing all associated equipment required, and installing the video vehicle detection system complete and in place, with necessary connections for proper operation, at the location shown on the plans, and placing the system in operation to the satisfaction of the Engineer.

TRAINING AND INSTALLATION

The suppliers of the hardware and software included, paid for, and provided for in the following pay items shall supervise the installation and testing of such items:

CLOSED CIRCUIT CAMERA SYSTEM
FIBER OPTIC TERMINATION IN CABINET
FIBER OPTIC SPLICING IN CABINET
WIDE AREA NETWORK
LIGHT POLE, STEEL, 45 FT. WITH CAMERA LOWERING SYSTEM
RADAR DETECTION SYSTEM
VIDEO DETECTION SYSTEM

A factory certified representative shall be present for the turn-on. In addition to the turn-on, the representative from the supplier shall be on-site for a minimum of one (1) day unless otherwise stated in this contract. The representative shall work with the other suppliers and representatives.

This representative shall be available for troubleshooting and if need be to meet with Department personnel and other suppliers for troubleshooting the project.

In addition to the installation, each representative shall provide training for a period of no less than two (2) hours to maintenance, communications and engineering personnel in the operation, setup, and maintenance of their company's equipment.

The cost of providing the factory certified representative and training of Department of Transportation personnel shall be included in the cost of the particular pay item’s contract unit price.

WARRANTY

The Contractor shall warranty all materials and workmanship including labor for a period of two (2) years after the completion and acceptance of the installation of the items included in the following pay items:

CLOSED CIRCUIT CAMERA SYSTEM
FIBER OPTIC TERMINATION IN CABINET
FIBER OPTIC SPLICING IN CABINET
WIDE AREA NETWORK
LIGHT POLE, STEEL, 45 FT. WITH CAMERA LOWERING SYSTEM
500G LAYER 2 SWITCH
2955 LAYER 2 SWITCH
3750G-12S LAYER 3 SWITCH
SFP-GE-L SFP MODULE
SFP-GE-Z SFP MODULE
GLC-T SFP MODULE
GLC-FE-100FX SPF MODULE
GLC-FE-100LX SPF MODULE
RADAR DETECTION SYSTEM
CONTROLLER CABINET TYPE III, SPECIAL (AIR CONDITIONED) (AIR CONDITIONER ONLY)

unless other warranty requirements prevail.

The Contractor shall obtain from the manufacturers, warranties for all electronic and mechanical equipment. These warranties shall be transferred to the Department or other maintaining agencies upon the completion and acceptance of the project. The manufacturer shall warrant the equipment and all parts thereof against any defects of design, workmanship, and materials, and guarantee to promptly repair or replace, free of charge, any item that has become defective for reasons not proven to have been caused by negligence on the part the user or acts of a third party during the warranty period.

The warranty period shall begin when the Contractor completes all construction obligations related to this item and when the components for this item have been accepted, which shall be documented as the final completion date in the construction status report. This warranty shall include repair and/or replacement of all failed components via a factory authorized depot repair service. All items sent to the depot for repair shall be returned within two (2) weeks of the date of receipt at the facility. The depot location shall be in the United States. Repairs shall not require more than two (2) weeks from date of receipt and the provider of the warranty shall be responsible for all return shipping costs. The depot maintainer designated for each component shall be authorized by the original manufacturer to supply this service.

A warranty certificate shall be supplied for each component from the designated depot repair site indicating the start and end dates of the warranty. The certificate shall be supplied at the conclusion of the system acceptance test and shall be for a minimum of two (2) years after that point. The certificate shall name the Department as the recipient of the service. The Department shall have the right to transfer this service to other private parties who may be contracted to perform overall maintenance of the system.

FINAL SYSTEM ACCEPTANCE

The Contractor shall request a turn-on of the CLOSED CIRCUIT TELEVISION CAMERA SYSTEM and WIDE AREA NETWORK after all of the equipment has been completely installed, fully operable, fully documented, IDOT staff training completed, and when the roadway is open to traffic. The CLOSED CIRCUIT TELEVISION CAMERA SYSTEM, WIDE AREA NETWORK, and RADAR BASED DETECTION SYSTEM must be inspected at the same time. Inspecting one (1) system without the others will not be permitted. All required system hardware and software shall be completely installed and fully operable prior to the systems inspection request. The inspection request must be made to the Engineer a minimum of three (3) working days prior to the time of the requested inspection. During the inspection all items will be tested for proper operation according to the contract and to the satisfaction of the Engineer and the Bureau of Operations. The Contractor shall be provided with a punchlist indicating which equipment failed the inspection and require corrective measures. Upon the turn-on inspection, the Engineer may allow the systems to operate in continuous operation but this shall not relieve the Contractor from correcting the failed items. The Contractor shall notify the Engineer when all the failed items on the punchlist have been corrected and shall request an inspection. A turn-on inspection shall not be considered successful until each item on the punchlist has been corrected by the Contractor to operate according to the contract and to the satisfaction of the Engineer.

After a successful turn-on inspection CLOSED CIRCUIT TELEVISION CAMERA SYSTEM and WIDE AREA NETWORK shall enter a 30 calendar day minimum on site monitoring phase. During this phase the Contractor shall monitor the operation of the systems. Failure of any component during the monitoring period, with the exception of expendable items such as fuses, shall be reported to the Engineer and corrective measures shall be taken by the Contractor to the satisfaction of the Engineer. A failed item in any system shall necessitate restarting the 30 calendar day monitoring period for all systems for the full 30 day duration beginning at the time when the failed item was corrected by the Contractor to the satisfaction of the Engineer.

At the end of a 30 calendar day monitoring period the Contractor shall provide the Engineer with a monitoring log for the items covering the thirty calendar day period. The Contractor shall utilize the system software capabilities to store and generate monitoring logs. Upon review of the logs and further equipment performance testing to the satisfaction of the Engineer, he/she will issue a CLOSED CIRCUIT TELEVISION CAMERA SYSTEM, WIDE AREA NETWORK, and VIDEO TRANSMISSION SYSTEM, Acceptance Notice or notify the Contractor in writing of the deficiencies.

This is not a pay item and cost shall be included in the cost of the particular pay item's contract unit price.

TRUSS MOUNTED LED DYNAMIC MESSAGE SIGN

GENERAL REQUIREMENTS

Equipment to be furnished at the dynamic message sign (DMS) field site shown in the plans shall include, but not be limited to the following:

LED DMS, pole-mounted local control box, all necessary electronics and communications hardware for a fully functional DMS, and required mounting hardware.

The LED DMS shall be Skyline Products Model #DMSLED-3-18L-07X070 or equivalent.

The DMS shall be compatible with the Department's existing Gigabit Ethernet over single-mode fiber network. It shall communicate without error for all of the applicable National Transportation for Intelligent Transportation System Protocol (NTCIP) standards for DMS and, thus, be compliant with all applicable NTCIP standards for DMS. The DMS shall be compatible with the Department's existing Advanced Traffic Management System (ATMS) software and shall support all mandatory objects of all mandatory conformance groups of NTCIP for DMS. All costs associated with compatibility testing and coordination will not be paid for separate, and shall be included in the cost of the DMS.

LED DYNAMIC MESSAGE SIGN (DMS)

The LED DMS shall enable the display of text, consisting of a string of alphanumeric and other characters. Each character shall be formed by a matrix of luminous pixels. The matrix of a standard character shall consist of 35 pixels over 5 columns and 7 rows. Each LED DMS shall be minimum 27 pixel high x 70 pixel wide, full matrix and capable of displaying three lines of text

using a standard 5 wide x 7 high font size. Each line shall be capable of displaying a minimum of 10 alphanumeric characters with 2 blank pixels spacing between each 5 x 7 character for maximum readability and a minimum of 14 alphanumeric characters with only one blank pixel between each character. All display elements and modules shall be solid state. No mechanical or electromechanical elements or shutters shall be used.

All characters, symbols, and digits shall be 18" nominal character size and shall be clearly visible and legible at a distance of 1100' within a minimum 15 degree cone of vision centered around the optical axis of the pixel.

The signs shall be capable of displaying the following:

- A static message
- A flashing message
- Alternating messages, either flashing or static

The changing from one message to another shall be instantaneous.

All field equipment shall remain fully functional over an ambient temperature range of -40° F to +149°F with relative humidity of up to 95%. All field equipment enclosures shall be designed to withstand the effects of sand, dust, and hose-directed water. All connections shall be watertight.

The size of the sign, along with other dimensions and configuration details of the sign covered by this specification, can be seen in Table 1.2 below:

TABLE 1.2: SPECIFIC SIGN DIMENSIONS / REQUIREMENTS	
Sign type:	Front Access
Matrix type:	Full
Nominal character height:	18.0 inches
No. lines:	3
LED manufacturer/part number (if applicable):	Agilent AlInGaP I / HLMP-EL18
LED color/wavelength:	Amber / 590 *n*m
LED viewing angle:	15°
LED pixel brightness:	40 Cd @ 25mA
Pixel layout: Display (H x W): Display Module (H x W):	3 x 14 27 x 70 (full matrix) 7 x 5
Power Service:	120/240 +12/-23 VAC, 60 Hz, single phase; 40 amps/leg (2 legs required)
Power consumption range:	3 – 18 Amps (@120VAC)

Maximum Width:	19 feet, 6 inches
Maximum Height:	8 feet, 3 inches
Maximum Depth:	26 inches
Approximate weight range:	2150 - 2350 lbs
Sign Controller Location:	Inside the sign

SUBMITTALS

The intent of this section is to summarize all the submittals required in the specifications. If a submittal is inadvertently omitted from this summary, but is included in another section of the specification, the DMS Manufacturer is still required to submit the information.

Submittal Description	Time Requirements	Department's Action
Experience	Include in Proposal	Review/Score
References	Include in Proposal	Review/Score
Factory Acceptance Test (FAT) procedures	After award and 60 days before test	Review/Approve or Reject
Factory Acceptance Test dates	After award and 30 days before test	Determine if a Rep. will attend
Factory Acceptance Test results	14 days after FAT	Review/Approve or Reject
Stand Alone Test (SAT) procedures	After award and 60 days before test	Review/Approve or Reject
Stand-Alone Test dates	After sign is installed	Determine if a Rep. will attend
Stand-Alone Test results	14 days after SAT	Review/Approve or Reject
System Test Procedures	After award and 60 days before test	Review/Approve or Reject
System Test dates	7 days before test	Determine if a Rep. will attend
System Test results	14 days after system test	Review/Approve or Reject
90 day test procedures	After award and 60 days before test	Review/Approve or Reject
NTCIP Testing	Prepare to have done for Short-listed Manufacturers	Perform test and score results
Shop Drawing Submittals	Within 15 days of award of contract	Review/Accept or Reject within 15 days of receipt
Sign Truss Details	Within 15 days of award of contract	Review/Accept or Reject within 15 days of receipt
Operator's Manuals	After installation and before final payment	Keep for future reference
Software Manuals	After installation and before final payment	Keep for future reference

Maintenance Manuals	After installation and before final payment	Keep for future reference
As-Builts	After installation and before final payment	Keep for future reference
DMS Weight (if over 2350lbs) and size (if over spec amounts)	Within 15 days of award, part of Shop Drawing submittal	Review/Accept or Reject within 15 days of receipt

DMS Housing Fascia	Within 15 days of award, part of Shop Drawing submittal	Review/Accept or Reject within 15 days of receipt
Declaration of version of NTCIP Standards, compliance, etc.	Within 15 days of award, part of Shop Drawing submittal	Review/Accept or Reject within 15 days of receipt
Declaration of compliance of NTCIP 1103	Within 15 days of award, part of Shop Drawing submittal	Review/Accept or Reject within 15 days of receipt
Declaration of compliance of NTCIP 1201	Within 15 days of award, part of Shop Drawing submittal	Review/Accept or Reject within 15 days of receipt
Declaration of compliance of NTCIP 1203	Within 15 days of award, part of Shop Drawing submittal	Review/Accept or Reject within 15 days of receipt
Declaration of compliance of NTCIP 2001	Within 15 days of award, part of Shop Drawing submittal	Review/Accept or Reject within 15 days of receipt
Declaration of compliance of NTCIP 2201	Within 15 days of award, part of Shop Drawing submittal	Review/Accept or Reject within 15 days of receipt
Declaration of compliance of NTCIP 2202	Within 15 days of award, part of Shop Drawing submittal	Review/Accept or Reject within 15 days of receipt
Declaration of compliance of NTCIP 2103	Within 15 days of award, part of Shop Drawing submittal	Review/Accept or Reject within 15 days of receipt

Declaration of compliance of NTCIP 2104	Within 15 days of award	Review/Accept or Reject within 15 days of receipt
Agenda for training session	30 days before training Once per year.	Review and comment
Certification, Warranty and/or Guarantee	Upon final acceptance, or sooner	Keep on file

The DMS Manufacturer shall also submit any additional documentation not previously described, but required by specification and necessary to fully describe the DMS and associated equipment including complete technical information, photographs, instruction manuals, security provisions, etc.

The DMS Manufacturer will be required to complete the sign mounting bracket structural details and the sign mounting bracket structural calculations. The miscellaneous members and hardware shall be furnished by the DMS Manufacturer.

QUALIFICATIONS FOR THE DMS MANUFACTURER

The DMS Manufacturer shall submit the references as specified below. Reference data shall include current name and address of organization, and the current name and telephone number of an individual from the organization who can be contacted to verify system operation, as well as date of system installation.

EXPERIENCE REQUIREMENTS

The DMS Manufacturer shall submit at least two references, preferably from other state departments of transportation, that are successfully operating a highway LED full matrix DMS system, supplied by this manufacturer under the current corporate name, which otherwise meets this specification, for a period of no less than one year. The LED DMS systems submitted shall be full-matrix and able to display at least 3 lines of 14 characters per line, 18" characters and have front access housings.

REFERENCES

The DMS Manufacturer shall submit three references, preferably from other state departments of transportation, that are successfully operating a multi-unit, multi-lane state or interstate highway, permanently-mounted, overhead dynamic message sign system supplied by this manufacturer under the current corporate name, for a period of no less than five years.

ISO 9001:2000 REQUIREMENTS

The company that designs and manufactures the LED DMS shall be currently ISO 9001:2000 certified as of the bid date for this project. The scope of this company's ISO 9001:2000 certification shall be for the Design, Manufacture, Installation, Maintenance and Sales of Dynamic Message Sign Systems. The facility where this company actually designs and

manufactures the LED DMS shall be ISO 9001:2000 certified. This company, this scope and the address of this facility shall all be listed on the ISO 9001:2000 certificate. This ISO 9001:2000 certificate shall be provided with the bid. The name, phone number and address of both the Authorized ISO 9001:2000 Registrar that certified this company and the Authorized ISO 9001:2000 Accreditation Body that accredited this Registrar shall be provided with the bid. Failure to fully comply with these requirements and to provide all this information will cause this company's equipment and software to be rejected. ISO 9002 and ISO 9003 certifications are not adequate and do not meet this requirement.

MATERIAL REQUIREMENTS GENERAL

All materials furnished, assembled, fabricated or installed under this item shall be new, corrosion resistant and in strict accordance with the details shown in the plans and as detailed in this specification. All details and functionality listed in this specification will be thoroughly inspected and tested by the department. Failure to meet all details and functionality detailed in this specification shall be grounds for rejection of the equipment.

The equipment design and construction shall utilize the latest available techniques with a minimum number of different parts, subassemblies, circuits, cards and modules to maximize standardization and commonalty. The equipment shall be designed for ease of maintenance. All component parts shall be readily accessible for inspection and maintenance. Test points shall be provided for checking essential voltages.

The sign shall be designed for a minimum life of 20 years.

The sign shall be designed and constructed so as to present a clean and neat appearance. Poor workmanship shall be cause for rejection of the sign.

All cables shall be securely clamped/tied in the sign housing. No adhesive attachments will be allowed.

The performance of the sign shall not be impaired due to continuous vibration caused by wind, traffic or other factors. This includes the visibility and legibility of the display.

The DMS hardware, along with the sign controller hardware, software and firmware, shall support all DMS functionality described throughout the remaining specification sections.

The DMS assembly shall be listed by an accredited 3rd party testing organization for conformance to Underwriters Laboratories (UL) standards 48 (Standard for Electric Signs) and 1433 (Control Centers for Changing Message Signs). Proof of this conformance shall be provided with submittal materials.

ELECTRONIC MATERIALS AND COMPONENTS

All electronic components, except printed circuit boards, shall be commercially available, easily accessible, replaceable and individually removable using conventional electronics repair methods. All electronic assemblies shall meet or exceed IPC 610A workmanship standards.

PRINTED CIRCUIT BOARDS

Each pixel shall have a device attached to the printed circuit board (PCB) to hold and protect the LEDs. These devices shall:

1. Hold the LEDs perpendicular to the display modules within 0.5 degree,
2. Prevent the LEDs from being crushed or bent during handling,
3. Protect the LEDs from damage when the display module is laid on the front surface (the side that the LED lamps are located),
4. Be easily removable from the display module PCB without any tools,
5. Not put any stress on the LEDs due to differentials of expansion and contraction between the device and the LEDs over the herein specified temperature range,
6. Not become loose or fall off during handling or due to vibrations,
7. Not block airflow over the leads of the LEDs,
8. Securely hold each LED while allowing a gap between the device and a minimum of 95% of the body of each LED for airflow,
9. Not block the light output of the LEDs at the required viewing angle,
10. Be black in color to maximize contrast.

Epoxy encapsulation of the LEDs will not be permitted. Hoods or visors shall not be used.

The LEDs shall be protected from the outside environmental conditions, including moisture, snow, ice, wind, dust, dirt and UV rays.

Printed Circuit Board (PCB) design shall be such that components may be removed and replaced without damage to boards, traces or tracks.

Only FR-4 0.062 inch minimum thickness material shall be used. Inter component wiring shall be copper clad track having a minimum weight of 2 ounces per square foot with adequate cross section for current to be carried. Jumper wires will not be permitted, except from plated-through holes to component. The maximum number of jumper wires allowed per circuit board is two.

All Printed Circuit Boards (PCBs), except for the power supply PCBs, UPS PCBs, modem PCBs and sign controller PCBs, shall be completely conformal coated with a silicone resin conformal coat. The material used to coat the PCBs shall meet the military specification: MIL-I-46058C Type SR and IPC-CC-830.

All PCBs shall be finished with a solder mask and a component identifier silk screen.

COMPONENTS

All external screws, nuts, and locking washers shall be stainless steel. No self-tapping screws shall be used. All parts shall be made of corrosion resistant materials, such as plastic, stainless steel, aluminum or brass. All materials used in construction shall be resistant to fungus growth and moisture deterioration. Dissimilar metals shall be separated by an inert dielectric material without compromising any intended electrical grounding functions.

CAPACITORS

The DC and AC voltage ratings as well as the dissipation factor of a capacitor shall exceed the worst case design parameters of the circuitry by 50%.

A capacitor which can be damaged by shock or vibration shall be supported mechanically by a clamp or fastener.

Capacitor encasements shall be resistant to cracking, peeling and discoloration.

RESISTORS

Any resistor shall not be operated in excess of 50% of its power rating.

SEMICONDUCTOR DEVICES

All transistors, integrated circuits, and diodes shall be a standard type listed by EIA and clearly identifiable.

CONNECTORS

All PCB edge connectors and cable connectors, except for those found in the power supply, UPS, modem and sign controller, shall be base plated with nickel and finished with 30 micro-inches of gold.

MECHANICAL COMPONENTS

All external screws, nuts, and locking washers shall be stainless steel. No self-tapping external screws shall be used. All parts shall be made of corrosion resistant materials, such as plastic, stainless steel or aluminum. All materials used in construction shall be resistant to fungus growth and moisture deterioration. Dissimilar metals shall be separated by an inert dielectric material.

DMS HOUSING

GENERAL CONSTRUCTION

The sign shall be designed and constructed so as to present a clean and neat appearance. Poor quality work shall be cause for rejection of the sign. The equipment within the sign housing shall be protected from moisture, dust, dirt and corrosion. The sign shall be constructed of aluminum alloy 3003-H14 or an approved equal which shall not be less than 1/8 inch thick. Framing structural members shall be made of aluminum alloy 6061-T6, 6063-T5, or approved equal. Seams shall be continuously welded by an inert gas process. The sign shall be designed for a minimum life of 20 years.

The sign enclosures shall be capable of withstanding wind loadings of 120 mph without permanent deformation.

The bottom panel of the sign housing shall have multiple drain holes, screened to prevent debris or insects from entering the sign. Water drain screen inserts shall be replaceable.

The performance of the signs shall not be impaired due to continuous vibration caused by wind, traffic or other factors. This includes the visibility and legibility of the display.

The presence of ambient magnetic or electromagnetic fields, including those created by any components of the system, shall have no deleterious effect on the performance of the system. The system shall not conduct or radiate signals which will adversely affect other electrical or electronic equipment including, but not limited to, other control systems, data processing equipment, audio, radio and industrial equipment.

Front-Access Housing

Front-access housing dimension shall not exceed 8'3" tall, 19'-6" wide, and 26"deep. The total weight added to the sign structure shall be no greater than 2500 pounds.

The front-access housing dimensions and total weight shall be as shown in this specification or in the plans. The lift-face housing shall be designed and manufactured to be rain and weather tight.

The lift-face housing shall meet NEMA 3R enclosure criteria as defined in NEMA Standards Publication 250-1997, *"Enclosures for Electrical Equipment (1000 Volts Maximum)."*

The sign housing shall be engineered and P.E. certified to 2001 AASHTO and NCHRP Report 411 specifications for AASHTO basic wind speeds. The sign housing shall also be engineered and P.E. certified to withstand group loading combinations as outlined in 2001 AASHTO including: sign weight, repair personnel and equipment, ice and wind loads, and shall also meet strength requirements for truck-induced gusts as specified in NCHRP Report 412. The sign housing shall be engineered to withstand snow loading (40 PSF) for applicable geographical regions.

Inside the sign housing, all 120 VAC service lines shall be independently protected by a thermomagnetic circuit breaker at the housing entry point. All 120 VAC wiring shall be located in conduit, pull boxes, raceways or control cabinets. No 120 VAC wiring shall be exposed to the inside or outside of the sign housing. The sign housing shall not be considered as a raceway or control cabinet.

Exterior Housing Panel

The exterior housing, door and end panels shall be 3003-H14 or approved equal aluminum alloy sheet, 1/8 inch minimum thickness.

The number of seams in the top housing panel shall be kept to a minimum. All seams in the top housing panel shall be continuously welded.

All exterior seams and joints shall be continuously welded by an inert gas process.

The exterior housing panel material shall be stitch welded to the internal structural members to from a unitized structure.

Interior Structure

The interior structural members shall be 6061-T6, 6063-T5, or approved equal aluminum alloy with 3/16 inch minimum wall thickness.

Mounting

The housing shall be designed to accommodate mounting on the rear vertical plane only.

The angular alignment of the sign housing shall be designed to optimize the viewing angle based on the sign location and 3-lane configuration as shown in the plans.

Housing Face

The internal structural members shall be extruded aluminum and shall accommodate both display module mounting and air distribution. They shall retain the display modules in a manner to facilitate easy and rapid removal of each display module without disturbing adjacent display modules.

The external fascia panels shall be extruded aluminum and shall be designed to keep heat conduction to a minimum between the exterior surfaces and the interior components. They shall incorporate provisions for retaining and sealing the modular lens panels and have a closed cell resilient gasket. They shall be finished with a matte black, KYNAR 500, or approved equal, and be removable from within the main sign housing. The external fascia perimeter panels shall be a minimum of 12” wide. The external fascia panels shall be thermally isolated from the rest of the sign housing. There shall be a minimum amount of metal contact between the external fascia panels and the rest of the sign housing. The design used to accomplish this shall be approved by the Department.

There shall be no exposed fasteners or welds on the housing face. The lens panel assembly shall consist of a PVDF resin coated aluminum mask over a clear glazing. The lens panel assembly shall be modular in design, interchangeable without misalignment of the lens panel and the LED pixels and removable from within the main sign housing.

The lens panel aluminum mask shall be 0.040” minimum thickness and finished with a matte black, factory applied PVDF resin. It shall be perforated to provide an aperture for each pixel on the display modules. Each aperture shall be as small as possible, without blocking the LED light output at the required viewing angle.

The lens panel clear glazing shall be 90% UV opaque, non-breakable, polycarbonate GE LEXAN XL, ¼” minimum thickness and clear in color shall be laminated to the inside surface of the lens panel aluminum mask using an acrylic foam tape joining system, 3M Scotch VHB, or approved equal, to form the lens panel assembly.

Surface Finish

The face shall be finished with a matte black, factory applied PVDF resin. All other exterior and all interior surfaces shall be a natural aluminum mill finish. No painted surfaces will be allowed.

Accessibility

The sign housing shall be front access. The sign housing shall be provided with a single lift-face for accessibility to all internal components of the sign. A sign with multiple access faces or doors is not acceptable.

The sign shall have a set of two geared screw jacks, one at each end of the sign face, that easily open the lift face and hold it open at any position from closed to 60 degrees open. The face shall be easily opened from a bucket truck at either end of the sign by a single person, using either manual or electrical tools.

Regular opening and closing of the lift face shall not cause warping or misaligned fit/closure. A stainless steel hinge shall connect the sign housing and the lift face. All components shall be readily accessible for maintenance when the lift face is open. Gaskets shall provide a weather-tight seal when the lift face is closed.

A minimum of two (2) closure devices shall be used to secure the lift face to the sign housing. A hasp that is lockable with a padlock shall be provided near one of the closure devices.

DRAIN HOLES

The bottom panel of the housing shall have a minimum of four drain holes, with snap-in, drain filter plug inserts, in each section formed by internal structural members. Water drain filter plug inserts shall be replaceable.

VENTILATION SYSTEM

The ventilation system shall be a positive pressure, filtered, forced-air system which cools both the display modules and the sign housing interior.

The sign housing shall have a minimum of two (2) exhaust ports. Each exhaust port shall be filtered and protected by an aluminum screened louver assembly, or other conformable method. The exhaust filters shall be sized for the required air volume.

The ventilation system shall have a minimum of two (2) blowers and shall exchange the DMS air volume to sufficiently cool the interior of the sign.

The filters shall be 1” thick, permanent, reusable, filters. These filters shall be easily removable from within the sign housing without the use of tools. Each sign shall include a complete set of replacement filters.

The internal housing temperature shall be automatically verified on command from the DMS Client software and existing IDOT ATMS software. Any over temperature condition shall cause

an error message to be sent to the DMS Client software and existing IDOT ATMS software when the sign controller is polled.

The ventilation system shall be designed to keep the internal DMS air temperature from exceeding +140° F, even when the outdoor ambient temperature is as high as +115° F.

The ventilation system shall be activated by temperature sensors.

Temperature sensors shall be continuously measured and monitored by the sign controller. A temperature greater than a user selectable critical temperature shall cause the sign message to go to blank and an error message shall be sent to the DMS Client software and existing ATMS software automatically. The DMS Client software, existing ATMS software and personnel on site with laptop computer at local control box position shall have the ability to read all temperature measurements from the sign controller. When the sign reaches a temperature of 130° F, it shall cut the LED intensity to half of its normal brightness to keep the sign from reaching the critical temperature and shutting down.

The temperature sensors shall have an accuracy of +/-3° F and a range from -40° F to +150° F.

The ventilation system shall be equipped with a manual override timer to provide ventilation for service personnel. The timer shall have a maximum “on” time of one (1) hour.

INTERNAL LIGHTING AND ELECTRICAL OUTLETS

The sign housing shall be furnished with four 100 watt incandescent lights with heavy duty fixtures. The lamps shall be spaced evenly above the walkway and shall be fitted with protective guards. The light switch shall be located near the door.

The sign housing shall be equipped with two 15 amp 120V (+/- 10%) grounded GFCI protected duplex electrical receptacles to accommodate inspection and maintenance requirements. One of these receptacles shall be located at each end of the sign housing. Additionally, the sign housing shall be equipped with sufficient and readily available power source in order to accommodate a fiber optic modem and all other necessary communications equipment required to transmit data from the sign to nearest controller cabinet with single-mode fiber optic communications for the backbone. The sign housing and display panel shall be designed to minimize any visible internal light from the outside of the DMS when the internal DMS lighting is on during nighttime maintenance activities.

ANTI-CONDENSATION/DEFOG/DEFROST

An effective, field-proven defogging and anti-condensation system shall be incorporated into the overall functionality of the sign. The face shall be heated to prevent fogging, frost and condensation. An eight watt-per-foot, self-regulating, heat tape shall be provided along the bottom of each message line, between the glazing and the display modules. The heat tape shall be controlled by the sign controller. All heat tape terminal blocks shall be covered for safety. Pencil-type or similar heating elements located in front of ventilation or defog/defrost fans are not acceptable.

A humidity sensor shall be provided and monitored by the sign controller from zero percent to 100 percent relative humidity in 1 percent or fewer increments. The sensor shall operate and survive from 0 percent to 100 percent relative humidity. The sensor shall have an accuracy that is better than +/- five percent relative humidity.

The sign controller shall read the internal temperature sensors, external ambient temperature sensor and the humidity sensor. The sign controller shall use these readings in an algorithm that turns on the heat tape and/or the fans at the appropriate times to reduce both frost on the face of the sign and condensation on the display modules and other electronic circuitry.

BASE BOARD HEATERS

Baseboard heaters shall be included in the sign housing. These heaters shall be capable of remote start up in anticipation of winter field service.

LAPTOP SHELF

The interior of the sign shall include a fold-down shelf for a laptop computer.

DISPLAY MODULES

GENERAL

Display modules consisting of nominal 18" high characters shall be assembled to form the specified full matrix message configuration. Each display module shall include an LED display circuit board and a piggyback daughter board. While the exact ratio of LED display circuit boards to daughter boards will be manufacturer specific, these circuit boards shall be designed and constructed to allow a single service technician to troubleshoot, isolate, remove, and replace these boards with minimal impact to the overall operation of the sign. The LED board shall contain a minimum of 35 LED pixels arranged into an 18" high matrix. The daughter board shall contain the solid state electronics necessary to control pixel data and read pixel status.

All LED boards and daughter boards shall be fully interchangeable and not require any address switches or adjustment when interchanged or placed in service. Module addressing, where required, shall be accomplished in the connector. The DMS Manufacturer shall document all LED testing for color so that replacement LED boards shall match existing amber color.

Pixel status and diagnostics returned from the daughter board shall include string failure, pixel failure and failed pixel location (line, module, row and column numbers). Replacement of a complete display module shall be possible using only simple hand tools. Interconnection of modules shall be through connectors only. All connectors shall be keyed to preclude improper hookups.

The display modules shall be approximately ¾" behind the lens panel assembly.

LED AND PIXEL CHARACTERISTICS

Each pixel shall be a maximum of 1-3/8" in diameter. The LEDs in each pixel shall be clustered to maximize long range visibility. The average light intensity of the LEDs in each pixel shall be 3 candela minimum. All pixels in the sign shall have equal color and on-axis intensity. All pixels shall have a minimum on-axis intensity of 40 candela @ 20 mA forward current, with an overbright capability of 60 cd.

All pixels in all signs in this project, including the spare parts, shall have equal color and on-axis intensity. The pixel shall contain two interlaced strings of LEDs. The pixel strings shall be powered from a regulated DC power source and the LED current shall be maintained at the LED manufacturer's specified nominal operating current to maximize life of the pixel. The failure of an LED in one string within a pixel shall not affect the operation of any other string or pixel. Pixel power drawn from the DC supplies shall not exceed 1.5 W per pixel, including the driving circuitry.

The LEDs shall be individually mounted directly to a printed circuit board and shall be easily replaceable and individually removable using conventional electronics repair methods.

DISPLAY MODULE CHARACTERISTICS

The display module shall consist of two electronic sub-assemblies, an LED board and a daughter board. Each display module shall contain a connector for power and a connector for controls and data.

The daughter board receives control signals and display data from the sign controller via a standard ribbon cable. The display module contains the control and memory elements and provides the signals to switch the LED pixels. All LED boards and driver boards shall be fully interchangeable and shall not require any manual addressing switches or adjustment when interchanged or placed in service. The driver board shall contain the solid state electronics necessary to control pixel data and read pixel status.

These pixels shall be arranged uniformly, capable of displaying an 18" dot matrix character. All LEDs shall be individually and directly mounted to the LED circuit board to form the LED board. The LED circuit board shall be a single, 0.062", FR4, flat black printed circuit board. The LED board shall also hold the supporting control electronics and have an extruded aluminum frame. The display modules shall be mounted to the display face in a manner that facilitates easy and rapid removal of each display module without disturbing adjacent display modules. Replacement of a complete display module shall be possible without the use of any tools.

All LEDs shall be mounted so that their mechanical axis is normal +/-1.00° to the face of the sign to ensure brightness uniformity over the face of the sign. The sign manufacturer shall propose a method, acceptable to the Engineer, to test the LEDs in the display modules to ensure they meet these criteria.

There shall be a power distribution system that connects each display module to all power supplies and minimizes the voltage drop over the face of the sign. Epoxy encapsulation of the LEDs shall not be permitted.

Hoods, louvers, cylinders or visors, that would impede the free flow of air over any surface of each individual LED, shall not be used. The LEDs shall be protected from the outside environmental conditions, including, but not limited to, moisture, snow, ice, wind, dust, dirt, and UV rays.

Pixel brightness shall be controlled by pulse width modulation of the DC current with an adjustable duty cycle of 2.0% to 99.9% in 0.5% or finer increments. The operational status of the LEDs in each pixel shall be tested and then transmitted to the DMS Client software, existing ATMS software, or laptop computer on site at local control box location. The pixel status test shall distinguish the difference between full-out, and fully stuck on pixels. A list of defective pixels shall be provided, listing x coordinate (from left hand edge of sign), y coordinate (measured down from the top of the sign) and the failure type (stuck on or stuck off) for each defective pixel. Pixels shall be arranged as such so that coordinate (1,1) is in the upper left corner and coordinate (125,27) is in the lower right corner.

The state of the LEDs (full on, or off) in each pixel of the sign shall be read by the sign controller when it is polled or when a message is downloaded from the DMS Client software, existing ATMS software, or laptop computer on site at local control box location, and shall allow the DMS Client software or laptop computer on site at local control box location show the actual message that is visibly displayed on the sign in a WYSIWYG format, including any full-out or fully stuck on pixels.

All printed circuit boards, except the LED circuit board, shall be conformal coated. The LED board shall be conformal coated except at the pixels. All printed circuit boards, including the LED circuit board, shall have a solder mask and a component identifier silk screen. The LED circuit board shall be no larger than 13-5/8”x19 1/8”. The display modules shall be assembled in a full matrix configuration.

CHARACTERS DISPLAYED

The sign shall be capable of displaying the following characters at any location in the message line:

“A” thru “Z”- All upper case letters.
“0” thru “9”- All decimal digits.
Space (i.e., ASCII code 0x20).
Punctuation marks shown in brackets [. , ! ? - ‘ ’ “ ” / ( )]
Special characters shown in brackets [# & * +< >]
3 pixel wide dash

The display modules shall be rectangular, and shall have an identical vertical and horizontal pitch between pixels. The pitch shall be no greater than 2 ¾”.

The separation between the last column of one display module and the first column of the next shall be equal to the horizontal distance between the columns of a single display module.

The characters shall be legible under all light conditions at a distance of 1100’ within a 15° degree cone of vision centered around the optical axis of the pixel.

The sign shall be the proper brightness in all lighting conditions for optimum legibility. It shall be bright enough to have a good target value, but not to the point where the pixels bloom, especially in low ambient light level conditions, as determined by the Department ITS Engineer, or those acting in his/her behalf.

The brightness and color of each pixel shall be uniform over the entire face of the sign within the fifteen degree cone of vision from 1100' to 200' in all lighting conditions. Non-uniformity of brightness or color over the face of the sign under these conditions shall be cause for rejection of the sign.

DISPLAY MATRIX

The DMS shall be a full-matrix configuration. A matrix with a minimum of 27 x 70 pixels must be supplied. The operator shall be able to display normal (5 x 7) ,compressed (4 X 7), expanded (6 X 7) or double stroke (7 X 7) character fonts. Font access privileges shall be assigned by the system supervisor.

LED DC POWER

Power to the LED display shall be provided by industrial-grade switching power supplies manufactured by Lambda (model number LZS1000) or a pre-approved equivalent. The power supplies shall have an efficiency of 75%. The voltage to the LED modules and associated electronics shall not exceed 25 VDC. The power supplies shall be redundant. The power supplies shall be paralleled in a Diode-OR configuration such that one supply may completely fail and the sign will still be supplied with enough power to run 50% of all pixels at 100% duty cycle at 149° F. Functioning supplies must current share to within 10%. The combined effect of line (95 to 135 VAC) and load (10% to 100%) on the power supplies be 80% greater at 120 VAC 50% to 100% of maximum load. The power supplies shall have a power factor of 0.95 or greater at 120 VAC from 50% to 100% of maximum load.

The power supplies shall be continuously monitored for proper operation by the sign controller. If the voltage drops below its nominal operating value, an error message shall be generated and transmitted to the DMS Client software, existing ATMS software, or laptop computer on site at local control box location automatically.

PHOTOELECTRIC SENSOR DEVICES

The sign shall incorporate a means of changing the brightness level provided by the LEDs automatically in response to ambient lighting conditions as detected by photo-electric sensors, and remotely in response to commands received from the central computer system. The photo-electric sensors shall be positioned to sense in three (3) directions. A minimum of sixteen (16) settings shall be used to control the brightness level. The lowest settings shall be for night use. The highest settings shall be for over bright control. The middle settings shall be for normal day time use allowing for variable light levels. Photo-electric sensors shall be provided integral to the DMS. These devices shall direct the sign controller unit to modify the intensity of the light produced by the pixel elements. The mounting devices for the photo-electric sensors shall allow full adjustment of the sensor orientation. The photo-electric sensors shall be located such that they are easily accessible for maintenance.

ENVIRONMENTAL BEHAVIOR

The signs shall be capable of operating without any decrease in performance over an ambient temperature range of -40° F to +149° F with a relative humidity of up to 95%.

MAIN POWER SUPPLY AND ENERGY DISTRIBUTION

The sign and its controller shall be designed for use on the following:

Power line Voltage - 120/240 VAC Nominal, single-phase power, 40 amperes per leg - the system shall operate within a voltage range of 95VAC to 135VAC.

Frequency – 60Hz +/- 3Hz

Under normal operation, the drop in voltage between no load and full load of the sign and its controller shall not exceed 10% of the nominal voltage. The system shall be protected by transient suppression devices including, MOVS, RIS and spark gap arrestor.

The system shall report any power failures to the main controller when system power returns.

Power protection shall be provided by a thermal magnetic circuit breaker associated with a 5 mA ground fault circuit interruption (GFI) device. A GFI device shall protect all service outlets.

The sign shall have a 40 A two-pole (common trip) main, 120/240 VAC, single phase, four wire load center with 20 circuit capability. Each circuit in the sign shall be powered from a separate circuit breaker. The power cables shall be as required by the NEC for acceptable voltage drop to supply AC power to the sign. The power required for sign operation shall not exceed 7000 watts for the sign housing to include fans, heaters, sign controller, communication equipment and all pixels illuminated at 100% brightness.

SURGE PROTECTION

The system power shall be protected by two (2) stages of transient voltage suppression devices including MOVS and spark gap arrestor. Tripping of each stage (or both if tripped simultaneously) of the surge protection shall cause the sign controller to call central and report the error condition (for dialup operation) or report the error condition to central on the next poll (for multi-drop operation). There shall be an option that is either enabled or disabled and is selected and downloaded from the central controller to the sign controller. When this option is enabled, tripping of both stages of surge protection shall prevent power from reaching any components of the sign until the surge protection has been replaced. When this option is disabled, the sign will continue to function normally after both stages of surge protection are tripped. Communication lines shall be protected by two (2) stages of transient voltage suppression devices including MOVS and spark gap arrestor. Tripping of each stage (or both if tripped simultaneously) of the surge protection shall cause the sign controller to call central and report the error condition (for dialup operation) or report the error condition to central on the next poll (for multi-drop operation). There shall be an option that is either enabled or disabled and is selected and downloaded from the central controller to the sign controller. When this option is enabled, tripping of both stages of surge protection shall disconnect the communication lines until the surge protection has been replaced. When this option is disabled, the sign will continue to function normally after both stages of surge protection are tripped.

UNINTERRUPTIBLE POWER SUPPLY (UPS)

A UPS shall be provided to allow the sign controller to notify the DMS Client software or existing ATMS software (if available) when an improper power condition at the DMS persists for longer than a user selectable “short power loss time”.

The UPS shall meet the following minimum specifications:

1. Line Transient Protection: Passes ANSI/IEEE C.62.41/C.62.45 Cat A&B
2. Safety Compliance: Satisfies US / CSA En50091-1 regulations.
3. Capacity: Must be able to operate controller & modem for 10 minutes
4. Voltage Nominal: 120VAC
5. Voltage Range: 92-135 VAC
6. Transfer time: <150 ms typical
7. Battery: Sealed, maintenance-free lead acid
8. Battery recharge time: 2-8 hours; must be temperature-compensated
9. Over current protection:
    a. UPS automatic shutdown if overload exceeds 110% of nominal for 3 minutes.
    b. Communications:
    c. RS-232 Interface (monitor, control and calibrate), DB-9 connection
10. Front panel display indicators: Fault, Test, Low Battery, On Battery, On Line
11. Operating temperature range: -37°C to +74°C

(NOTE: The UPS shall be mounted and operated in a manner to meet the temperature range requirements of the DMS as outlined in Section 2.5 (-40°C to 74°C (-40°F to 165°F) with a relative humidity of up to 100% condensing).

SIGN CONTROLLER UNIT (SCU)

The sign controller shall be a multiple-sourced, non-proprietary, 19-inch rack-mountable, Type 2070 Lite traffic controller meeting the latest CALTRANS Specifications and shall be provided with resident software stored in non-volatile memory.

The 2070 Lite shall perform all communication, control and feedback functions and shall be the only sign controller. No intermediate sign controller shall be used. Proprietary sign controllers shall not be used.

The 2070 Lite shall include a minimum of seven (7) serial communications I/O ports, including three (3) RS-232 ports, three (3) RS-485 ports, one (1) Ethernet port and one (1) fiber optic communications port (Module 6D).

The sign controller shall be programmed to receive NTCIP-compliant sign control commands from the central controller (DMS client software or existing ATMS) or laptop computer, transmit NTCIP-compliant responses as requested to the central controller (DMS client software or existing ATMS) or laptop computer, monitor sign and message status and control sign operation and message displays.

The controller will have power-up and auto-restart capabilities with a programmable default message (including a blank message) when recovering from a power off condition. A hardware watch dog circuit will be utilized to provide automatic reset to the controller and the modem. The DMS client software and existing ATMS software (if applicable) shall be capable of remotely commanding a controller and modem reset.

The sign controller shall be capable of being controlled from the DMS client software, existing ATMS or the laptop computer.

GENERAL

The sign controller shall be provided with resident software stored in non-volatile memory. The sign controller shall be programmed to receive sign control commands from the master controller, transmit responses as requested to the master controller and control sign operation and message displays.

The sign controller shall be able to receive and send messages and data via IEEE 802.3 (Ethernet), fiber optic modem, and cellular CDPD, CDMA or GSM/GPRS. Transmission speed shall be a minimum of 36.6 kbps. A test pattern shall be provided in the DMS controller.

The sign controller shall be designed for fail-safe prevention of improper information display in the case of a system malfunction. Failure of any sign shall not affect operation of any other sign in the system. The sign controller shall consist, but not be limited to, the following:

Local control panel status indicators, including:

1. power on/off
2. communication status with the electronics in the walk-in housing
3. sign display power supply status
4. controller address
5. Power supply module
6. Central processor module
7. Input/output circuits

The sign controller shall have power-up and auto-restart capabilities with automatic sign blanking when recovering from a power-off condition. A watch-dog circuit shall be utilized to provide automatic shut down of the sign in the event of power or sign controller failure.

Connections from the controller shall be accomplished via industry standard, keyed type connectors with a retaining mechanism.

DISPLAY SYSTEM HARDWARE

The sign controller shall communicate with the display modules via the system interface circuit consisting of data bus drivers and line address decoders. Communication and control lines between the sign controller and the system interface circuits shall be surge protected.

The following shall be mounted inside the front-access housing:

- Sign controller
- Fiber optic modem
- IEEE 802.11b wireless access point for remote communication to sign controller from ground elevation
- Display system interface circuits
- Display modules
- Power supplies
- Local/remote control switch and LED indicator
- RS-232 (or Ethernet) plug-in connection for the laptop computer
- S-232 cable (or CAT 5 Ethernet cable) a minimum of 4' long to connect the laptop computer to the sign controller
- Uninterruptible power supply
- Work space for the laptop computer
- Communication equipment and transient voltage surge suppressors (TVSS)
- Type I duty rating 2 step ladder. Ladder shall be mounted so that it does not interfere with the workspace available in the housing and be easily removed for use.

SIGN CONTROLLER COMMUNICATION INTERFACE

The sign controller shall be able to communicate with the DMS Client software, existing ATMS software, or laptop computer on site at local control box location using event-driven operation. Upon any status changes initiated either remotely or locally to the DMS controller, controller shall automatically update the DMS Client software and existing ATMS software. It shall be possible for a maintenance technician to connect a laptop computer to the remote control port, either from ground level outside the sign at the local control box, or from within the sign's front-access housing, and carry out all operations that could be carried out by the central computer. Connection of a laptop without disconnecting the sign controller shall be accomplished with additional control ports. The sign and sign controller shall also be capable of remote communication access via IEEE 802.11b from a laptop for remote control, programming and diagnostics. The sign manufacturer shall provide two IEEE 802.11b communications cards to be installed in existing Department laptops by the Department. The sign manufacturer shall set up and configure appropriate security measures for all IEEE 802.11b hardware provided to ensure a secure network.

The DMS Manufacturer shall provide all required modems. The DMS equipment shall be able to support connection to Department's nearest single-mode fiber optic communications backbone controller cabinet location for remote control, programming and diagnostics by way of:

Ethernet over fiber optic cable
Wireless LAN (IEEE 802.11b standard)

Only one of the required communications methods shall be operational at any one time from the DMS. However, different communications method may be used simultaneously by DMS field devices controlled by a single DMS master sign controller.

For Ethernet operations, each controller shall be assigned a unique controller ID - a 4 bit IP Network Address. The IP address shall also be used to ensure that SNMP Trap messages are able to identify the originating sign.

SIGN CONTROLLER FUNCTIONS

The sign controller shall be controlled from the DMS client software, existing ATMS software or the laptop computer, which shall specify the appropriate display. The sign controller and its software shall perform the following functions:

- Display a message, including:
- Static messages
- Flashing messages
- Alternating messages
- Double brush stroke messages for maximum legibility
- Full-Matrix type displays

It shall be possible to separately vary the flashing and alternating frequency. The flashing frequency shall vary between one-half and five seconds in one tenth second increments. The alternating frequency shall vary between one-half and five seconds in one-tenth second increments.

It shall be possible to flash any character or set of characters in a static or alternating message. In the case of alternating message, the flashing period shall be a submultiple of the alternating on time it is associated with.

Report errors and failures, including:

Data transmission error
Receipt of invalid data
Communications failure recovery
AC power failure
Power recovery
Pixel status
Fan status
Temperature status
Power Supply status

The sign controller shall issue an SNMP trap under the following conditions:

Power Supply Failure – when the AC power supply at a DMS has failed.
Power Restoration - whenever it detects restoration of AC power at the sign controller.
Temperature Limit – Whenever internal DMS temperature initially exceeds a programmed safety limit. A new trap will not be issued until the temperature once again falls below the safety limit and then exceeds it.
Door Open – Whenever the door of the DMS housing or the door of the controller cabinet is opened.

Message and status monitoring:

The sign controller shall transmit a return message to the DMS client software and existing ATMS software whenever it receives a valid request for status. The return message shall contain the following:

Address of the sign controller
Actual message that is visibly displayed on the sign on an individual pixel basis
Current sign illumination level
Error and failure reports
Temperature readings
Power supply operational status
Origin of display message transmission (laptop, manual, central, etc)
Beacon status (for possible future enhancement)
Uninterruptible power supply status

The sign controller shall blank any message displayed in the event of power or sign controller failure. Also, in the event of power failure the sign controller shall immediately access the modems and notify the master controller of AC failure.

The sign shall normally display single stroke (5 X 7) characters, compressed (4 X 7), expanded (6 X 7) or double-stroke (7 X 7) character fonts. Each font shall be fully customizable, and modifications to a font may be downloaded to the sign controller from the DMS client software and existing ATMS software or laptop computer at any time without any software or hardware modifications. The sign shall be capable of displaying a different font and character spacing on each line.

The sign controller shall monitor the photo cell circuits in the sign and convert the measured light intensity into the desired pixel brightness. The photo circuit readings shall be correlated with a brightness table in the sign controller. The brightness table shall have a minimum of 255 brightness levels. Automatic adjustment of the LED driving waveform duty cycle shall occur in small enough increments so that brightness of the sign changes smoothly, with no perceivable brightness change between adjacent levels. The brightness levels shall be adjustable from the DMS client software.

The operational status of each pixel in the sign shall be automatically tested once a day and tested when a pixel test is required from the DMS client software and existing ATMS software or laptop computer. A list of defective pixels shall then be transmitted to the DMS client software and existing ATMS software or laptop computer and logged into the log file, listing pixel status, module number, column number and pixel number. This pixel status test shall distinguish the difference between full out and fully stuck on pixels. This test shall not affect the displayed message for more than 0.5 seconds.

When the sign controller is polled and when a message is downloaded from the DMS client software and existing ATMS software or laptop computer, each pixel in the sign shall be read and its current state for the current displayed message, and shall be returned to the DMS client software and existing ATMS software to show either on a laptop computer or the controller itself, the actual message that is visibly displayed on the sign on an individual pixel basis in a WYSIWYG format.

The operational status of the fans shall have the ability to be automatically tested once a day and tested on command from the DMS client software and existing ATMS software or laptop computer. Any failure shall cause an error message to be sent to the DMS client software, existing ATMS software or laptop computer when the sign controller is polled by the DMS client software, existing ATMS software or laptop computer.

Temperature sensors shall be continuously measured and monitored by the sign controller. A temperature greater than a user selectable critical temperature shall cause the sign message to go to blank and an error message shall be sent to the DMS client software and existing ATMS software or laptop computer when the sign controller is polled by the DMS client software, existing ATMS software or laptop computer. This user selectable critical temperature shall be capable of being changed by the DMS client software existing ATMS software (if available) or laptop computer. The DMS client software and existing ATMS software (if available) and laptop computers shall have the ability to read all temperature measurements from the sign controller. When the sign reaches an internal temperature of 130° F, it shall cut the LED intensity to half of its normal brightness to keep the sign from reaching the critical temperature and shutting down.

When the display time of a message has expired, the controller shall set the sign to neutral. A sign is considered to be neutral when the sign is blank

In the event of a communications failure with the DMS client software or existing ATMS software, the sign controller shall set the sign to neutral after a user-defined number of minutes (1 to 60) unless communications have been restored within this period. This function shall apply only when the sign controller is in the Master Control mode.

All LED module power supplies shall be continuously monitored by the sign controller. A low voltage reading shall cause an error message to be sent to the DMS client software, existing ATMS software or laptop computer when the sign controller is polled by the DMS client software, existing ATMS software or laptop computer.

There shall be no perceivable flicker or ghosting of the pixels during sign erasure and writing periods.

Message additions, deletions and changes in the sign controller shall be made from either the DMS client software, existing ATMS software or the laptop computer.

In the event of an AC power loss, all non-volatile memory shall be retained for a minimum of 30 days. AC power failure shall cause the sign controller to notify the DMS client software and existing ATMS software and display an error message on the DMS client software and existing ATMS software CRT. For cellular operation, the sign controller shall immediately access the modem to notify the DMS client software and existing ATMS of the AC power failure.

Failure of any sign shall not affect the operation of any other sign in the system.

The sign controller internal time clock shall ensure that a message is taken down at the correct time, even in the event of communications loss.

The sign controller shall maintain its internal clock during power outages of less than 4 hours and display the proper message when power is restored.

The sign controller shall be able to put a self-updating time, temperature and/or date display on the sign.

The sign controller shall allow a moving arrow to be displayed by the DMS client software, existing ATMS software or laptop computer. The moving arrow shall be one line with a standard

message on the other lines. The moving arrows shall be from the left or right and shall start from one end or in the middle of the sign and continue to the end of the sign.

MODES OF OPERATION

The mode of operation shall determine which level of control governs the DMS message selection. The two modes of operation shall be:

Master- the DMS Master Controller (the DMS client software or existing IDOT ATMS software) determines the appropriate message or test pattern.

Local - the sign controller keypad or laptop computer is used to determine the appropriate message or test pattern.

SAFETY OF OPERATION

All DMS Equipment shall meet all of the requirements in Section 3.2.4 “Power Interruption’ of the National Electrical Manufacturers Association (NEMA) Standard TSI for Traffic Control Systems.

All DMS Equipment shall meet all of the requirements in Section 2.1.6 “Transients, Power Service” of NEMA Standard TS1.

In the event of a communications failure with the DMS client software or existing IDOT ATMS software, the sign controller shall set the sign to neutral after a defined number of minutes, unless communications have been restored within this period (whatever the remaining display time).

The function described above shall apply only when the sign controller is in the Master Controller Mode.

DESCRIPTION OF THE VARIOUS COMMANDS

As a minimum, the following commands shall be available at the sign controller:

- Display command from the DMS client software and existing ATMS (Master Control Mode).
- Display command from the laptop computer (Local Control Mode).
- Sign Status request - This command shall provide a report concerning the:
- Sign appearance (lit, blank or neutral)
- Status of pixel, fan, temperature and power supply
- Mode of the displayed message (local/master)
- Status of the photoelectric sensors
- Light output level (minimum of 255 user defined levels)
- Sign number, location, or ID
- Pixel status request - This command shall provide a current indication of the status of all the pixels.
- Light output switching command (minimum of 255 user defined levels)

- "Blank sign" command
- Sign off command (set to neutral state)
- Echo command - This command shall provide a report concerning the message currently displayed by the controller (pixels on, display parameters, remaining display time, font used, character spacing).
- Any commands/functions detailed elsewhere in this specification.

SIGN CONTROLLER LOCATION

The sign controller shall be mounted inside the sign housing, along with the following:

- Modem
- Display system interface circuits
- Local/remote control switch
- Local control LED indicator
- AC and Communication surge protection
- RS-232 plug-in connection for the laptop computer
- RS-232 cable (a minimum of 4 feet long to connect the laptop computer to the sign controller)
- Uninterruptible power supply

The local/remote switch located in the sign shall work in parallel with the local/remote switch located in the pole-mounted local control cabinet.

POLE-MOUNTED LOCAL CONTROL CABINET

The local control cabinet shall be mounted on the vertical sign support structure as indicated on the plans.

The pole-mounted local control cabinet shall contain the following assemblies:

- Power-on indicator
- Waterproof local/remote switch
- Local control LED indicator
- 5V Power Supply
- Sign controller reset push-button switch
- RS-232 connection for the portable laptop computer
- RS-232 cable a minimum of 4 feet long to connect the laptop computer
- 120 VAC GFI outlet

The cabinet dimensions shall be approximately 27 inches high by 15 inches wide by 12 inches deep.

There shall be a hinged shelf which folds from inside the cabinet and is suitable for the laptop computer to rest on.

The cabinet shall be a NEMA 3R single-door enclosure.

The cabinet shall be constructed using unpainted sheet aluminum with a minimum thickness of 0.125 inch. Material used in the cabinet shall meet NEMA standards.

The cabinet shall be completely weatherproofed to prevent the entry of water. All exterior seams for cabinets and doors shall be continuously welded. All exterior welds shall be smooth.

The cabinet shall be provided with one full size door to provide access to the cabinet. The door shall be provided with a stainless steel piano hinge, with a stainless steel pin spot welded at the top. The hinge shall be mounted so that it is not possible to remove it from the door or cabinet without first opening the door.

The door and hinges shall be braced to withstand a 100 pound per vertical foot of door height load applied vertically to the outer edge of the door when standing open. There shall be no permanent deformation or impairment of any part of the door or cabinet body when the load is removed.

The cabinet door shall be fitted with a number 2 Corbin lock. Four keys shall be provided. The cabinet door shall also be pad-lockable.

The door opening shall be double flanged on all four sides.

A gasket shall be provided to act as a permanent dust and weather resistant seal at the cabinet door facing. The gasket material shall be closed-cell neoprene and shall maintain its resiliency after exposure to the outdoor environment. The gasket must show no sign of rolling or sagging and must ensure a uniform dust and weather resistant seal around the entire door facing.

The power-on indicator shall show when the display system interface circuits are energized.

All shop drawings of the cabinet, as described in this specification and the plans, shall be submitted to the Engineer for approval before installation

All markings and identification shall be silk screened on the panel and sealed with a clear sealer or as approved by the Engineer.

The DMS manufacturer shall be responsible for providing, performing final hookup and testing the control cable between the sign and pole-mounted local control cabinet.

SIGN TO POLE-MOUNTED LOCAL CONTROL CABINET INTERCONNECTION

Cables between the sign and the pole-mounted local control cabinet shall be provided for operation of the sign.

Signal control and data cables shall be multiple stranded, twisted pairs, 300 V dielectric, shielded cable.

SIGN CONTROLLER MODEM

Communication between the central controller and the sign controller must be capable of operating with the modem(s) described below:

FIBER-OPTIC MODEM

The fiber-optic modem shall be an International Fiber Systems VT1910, and shall operate as a married pair with an International Fiber Systems VR 1910 located at the nearest controller cabinet containing the fiber optic backbone. From there, DMS data will be connected to the Ethernet backbone.

SWITCHING BETWEEN DIAL-UP, MULTI-DROP AND FIBER-OPTIC OPERATION

Switching between dial-up, multi-drop and fiber-optic operation shall require no software or hardware modifications. No tools, other than a standard screw driver, shall be required. No jumpers or switches shall be changed, except for front-panel switches to set baud rate or other communication parameters. The only required changes shall be:

- The existing modem shall be removed and replaced with the new modem.
- The sign's communication type shall be easily reconfigured at the controller front panel.

DMS REPLACEMENT PART ALLOWANCE

An allowance of $10,000 shall be included in the material cost of replacement parts for the DMS. The Contractor shall submit a list of recommended replacement parts with associated unit costs and quantity within 90 days after award.

The Contractor shall allow in the contract bid the allocated allowance amount as described above, and said amount shall be included under this Special Provision. The amount stated above is for material only. No other related costs associated with the purchase, delivery, and other related overhead costs shall be included in the above amount. The material and overhead costs associated with this item shall be included in the pay item TRUSS MOUNTED LED DYNAMIC MESSAGE SIGN.

TECHNICAL ASSISTANCE

The DMS manufacturer's technical representative shall provide on-site technical assistance in following areas:

- Sign to structure installation
- Controller cabinet installation
- Sign housing to ground control cabinet cable termination
- Initial sign turn on and stand alone test

The initial powering up of the sign(s) shall not be executed without the permission of the DMS manufacturer's technical representative.

Special or proprietary cables shall be provided by the DMS Manufacturer to the installation contractor.

TESTING REQUIREMENTS

The Department has the right to require performance testing of materials and equipment not previously tested and approved. If technical data are not considered adequate for approval, samples may be requested for testing.

The DMS Manufacturer shall provide five (5) copies of all factory acceptance tests, stand-alone, system test and 90 day test procedures and data forms for the Department's approval at least 60 calendar days prior to the day the tests are to begin. The test procedures shall include the sequence in which the tests will be conducted. The test procedures shall have the Department's approval prior to submission of equipment for tests.

The DMS Manufacturer shall perform the factory acceptance tests, stand-alone and system test. The DMS Manufacturer shall furnish data forms containing all of the data taken, as well as quantitative results for all tests. The data forms shall be signed by an authorized representative (company official) of the equipment manufacturer. At least one (1) copy of the data forms shall be sent to the Department within 14 days of the test's conclusion.

The Department reserves the right to have a representative to witness all tests. The results of each test shall be compared with the requirements specified herein. Failure to conform to the requirements of any test shall be counted as a defect, and the equipment shall be subject to rejection by the Department. Rejected equipment may be offered again for a retest, provided that all non-compliances have been corrected and retested by the DMS Manufacturer and evidence thereof submitted to the Department.

Each of the tests on all or one type of equipment must be completed within five (5) working days of each other. Any delays in performing all these tests may result in the DMS Manufacturer paying the additional costs of providing the Department's representatives for the additional testing time.

Final inspection and acceptance of equipment shall be made after installation at the designated location as shown on the installation plans.

The DMS Manufacturer shall be responsible for providing the test fixtures and test instruments for all the tests.

The Stand-Alone and System Tests are separate tests, however, they may be performed by the DMS Manufacturer during the same visit.

Consequences of Test Failures: If any unit fails to pass its test, the unit shall be corrected or another unit substituted in its place and the test successfully repeated.

If a unit has been modified as a result of a test failure, a report shall be prepared and delivered to the Department prior to shipment of the unit. The report shall describe the nature of the failure and the corrective action taken.

If a failure pattern develops, the Department may direct that design and construction modifications be made to all units at no additional cost or extension of the contract period.

FACTORY ACCEPTANCE TESTS (FAT)

The DMS Manufacturer shall be responsible for conducting demonstration tests on all units at a DMS's Manufacturer's facility. These tests shall be performed on each unit supplied. The Department shall be notified a minimum of 30 calendar days before the start of tests. At a minimum, all equipment shall have passed the following individual tests:

EXAMINATION OF PRODUCT

Each DMS unit shall be examined carefully to verify that the materials, design, construction, markings and quality of work comply with the requirements of these project specifications.

CONTINUITY TESTS

The wiring shall be checked to determine conformance with the requirements of the appropriate paragraphs in these project specifications.

OPERATIONAL TEST

Each DMS unit shall be operated long enough to permit equipment temperature stabilization, and to check and record an adequate number of performance characteristics to ensure compliance with the requirements of these project specifications.

NTCIP TEST

A NTCIP test shall be performed at the DMS Manufacturer's facility. The Department may elect to perform and/or witness this test. The specifics of this FAT shall be proposed by the DMS Manufacturer to the Department for approval. The Department encourages the DMS Manufacturer to use the testing methods as described herein, but understands your company may not have the license to test the described software.

STAND-ALONE TESTS

The DMS Manufacturer shall conduct an approved stand-alone test of the equipment installation at the field site. The test shall, as a minimum, exercise all stand-alone (non-network) functional operations of the field equipment with all of the equipment installed as per the contract documents.

Approved data forms shall be completed and turned over to the Department as the basis for review and rejection or acceptance. At least 30 working days notice shall be given prior to all tests to permit the Department to observe each test.

SYSTEM TESTS

The DMS provided shall be compatible with the Department's existing Advanced Traffic Management System (ATMS) software. The DMS Manufacturer shall provide the latest version of Skyline Products NTCIP DMS Client and Server software. The Department currently uses Skyline Products NTCIP DMS Client Version 1.15.00. The DMS shall also be compatible with

the latest version of Skyline Products NTCIP DMS Client and Server software. All costs associated with compatibility testing and coordination with the Department's existing ATMS vendor, National Engineering Technology (NET), and existing DMS vendor's client/server software, Skyline Products, will not be paid for separate and shall be included in the cost of the DMS.

The DMS Manufacturer shall conduct approved DMS system tests on the field equipment with the DMS manufacturer's software and the Department's existing Advanced Traffic Management System software and equipment for comparison. The Department shall be notified a minimum of seven (7) calendar days before the start of tests. The tests shall, as a minimum, exercise all remote control functions and display the return status codes from the controller and all standard NTCIP functions for a minimum of 72 hours. Approved data forms for both the DMS manufacturer's software and Department's existing ATMS software shall be completed and turned over to the Department as the basis for review and for rejection or acceptance.

72 HOURS AND 90 DAYS TEST

After the installation of the DMS system is completed and the successful completion of the System Test, the DMS system shall be subjected to one continuous 72-hour full operating test prior to a 90 day test period. The test shall consist primarily of exercising all control, monitor and communications functions of the field equipment by the central equipment.

The 90 days test period shall commence on the first day after the successful completion of the approved 72-hour continuous full operating test period.

During the 90 days test period, downtime, due to mechanical, electrical and/or other malfunctions, shall not exceed five (5) working days. The Engineer may extend the 90 days test period by a number of days equal to the downtime in excess of five (5) working days.

The Engineer will furnish the DMS vendor with a letter of approval stating the first day of the 90 days test period.

NTCIP STANDARDS TESTING

The Department and DMS Manufacturer shall test the DMS system for NTCIP compliance using Intelligent Devices Inc. (IDI) Device Tester. Any differences in the interpretation of the newly developed NTCIP Standards shall be decided by the NTCIP Joint Standards Committee.

The DMS manufacturer shall be responsible for ensuring that the DMS equipment complies with the NTCIP Standards as specified herein. The NTCIP field testing will be completed no later than 30 calendar days after the installation of the DMS.

MAINTENANCE SERVICES

The installation contractor shall provide complete maintenance services for the entire DMS assembly until the final acceptance. All labor, travel, replacement parts and associated costs necessary to maintain the DMS assembly shall be included in the contract at no additional cost to the Department.

The installation contractor shall correct all failures in the DMS assembly within 48 hours of notification from the Department until final acceptance. A failure of a sign installation shall be defined as the inability of the sign to function as per these specifications. A failure shall also be defined as the sign becoming unreadable or illegible as determined by the Department.

FINAL SYSTEM ACCEPTANCE

Final system acceptance will be defined as when all work and materials provided have been furnished and completely installed by the DMS Manufacturer, and all parts of the work have been approved and accepted by the Department and the Dynamic Message Sign System has been operated continuously and successfully for 90 calendar days with no more than 5 calendar days downtime due to mechanical, electrical and/or other malfunctions, as specified herein.

The warranty period, as specified in herein, will begin upon final acceptance.

AS-BUILT DOCUMENTATION

The DMS Manufacturer shall provide to the Department the following documentation of the complete installed equipment prior to final payment. Sufficient documentation shall be provided to reflect “as-built” conditions and to facilitate operation, maintenance, modification, and expansion of the system or any of its individual components. Manufacturer supplied documentation which covers the intent of this requirement may be used, subject to the approval of the Department:

The DMS Manufacturer shall prepare and submit the following detailed drawings for each sign:

- the DMS character set as detailed herein,
- all non-catalog or custom-made components,
- sign housing assembly details, including the component location details and a layout of all the display elements, complete with dimensions,
- sign housing structural details, including member details, support mechanism details required for installation of the DMS onto the sign truss, welding details, and miscellaneous hardware details; complete with dimensions and sizes,
- sign mounting bracket structural details, including miscellaneous members and hardware required to attach the DMS to the sign truss; complete with dimensions and sizes, and
- wiring schematics.

OPERATOR’S MANUALS

A manual containing a general description and detailed operating and installation instructions shall be provided for each different type or model of equipment. One (1) copy of the manual shall be provided and kept in the sign cabinet. An additional ten (10) copies of the manual shall be submitted to the Department for each model of equipment. An additional copy of the manual shall be submitted to the Department on CD for each model of equipment. The manual shall include the following information:

1. A general description of the equipment including all information necessary to describe the basic use or function of the system components. This shall include a general block diagram presentation of the equipment. Where auxiliary equipment is required, tabular charts shall be included, listing such equipment. These charts shall include the nomenclature physical and electrical characteristics and functions of the auxiliary equipment unless such information is contained elsewhere in an associated manual. In the latter case, a reference shall be made to the location of the information pertaining to the auxiliary equipment.

2. The theory of operation of the system components in a clear, concise manner supported by simplified schematics, logic, data flow diagrams, one-function diagrams, etc. Timing and waveform diagrams and voltage levels shall be shown as required. A logical development shall be used starting with a system block level and proceeding to a circuit analysis. Circuit analysis shall be detailed whenever circuits are not normally found in standard textbooks. The application of new theoretical concepts shall be fully described. Where the design allows operation in a number of different modes, an operational description of each mode shall be included.

3. In simple, clear language, the routine of operation, from necessary preparations for placing the equipment into operation, to securing the equipment after operation. This section shall contain appropriate illustrations, with the sequence of operations presented in tabular form wherever feasible. This section shall also contain a list of applicable test instruments, aids and tools required in the performance of necessary measurements and technique of each system component. In addition, set-up test, and calibration procedures shall be described.

4. Schematic diagrams shall be complete and accurate as required to supplement the text material and to allow the books to be a self-contained technical information source. Maximum size of these diagrams should be limited to allow their use in close proximity of the equipment, in the classroom, etc., part reference symbols, test voltages, waveforms, and other aids to understanding of the circuit's function shall be included on the diagrams. Test voltages, waveforms, and other aids to understanding of the circuit's function may be shown on both the simplified schematics and other drawings (as required in the above sections) on theory of operation, or maintenance or on the schematic diagrams required for this section. The overall scope of information shall not be less, however, than that stated for the schematic diagrams.

SOFTWARE MANUALS

The DMS Manufacturer shall provide manuals and data for the computer software system and components thereof. One (1) copy of the manual shall be provided and kept in the sign cabinet. Ten (10) additional copies of the manual shall be submitted to the Department for each version of software. One (1) copy of the manual shall be provided on CD. As software is upgraded, updated versions of the manual shall be provided. This submittal shall include the following:

1. Software user's manuals shall be supplied. Include instructions for performing a backup of all software and message libraries.
2. Manufacturer's documentation (including schematics) for all plug in circuit cards used in the microcomputer chassis.

3. Computer program logic in flowchart form.
4. Narrative descriptions of programs and input/output formats.
5. Two (2) copies of source programs, for master and sign controller software, shall be provided on CD-ROM. The Department shall have the right to duplicate the sign controller software as needed for use in controlling signs under its' jurisdiction.
6. The DMS Manufacturer's NTCIP MIB (Management Information Base) shall be provided to the Department.
7. Warranty information.
8. Preventive maintenance and maintenance information.

MAINTENANCE MANUALS

A manual containing a general description and detailed maintenance instructions shall be provided for each different type or model of equipment. One (1) copy of the manual shall be provided and kept in the sign cabinet. An additional ten (10) copies of the manual shall be submitted to the Department for each model of equipment. One (1) copy of the manual shall be provided on CD. The manual shall include the following information:

1. The manufacturer's recommended procedures and checks necessary for preventive maintenance. This shall be specified for pre-operation, weekly, monthly, quarterly, semi-annual, annual, and "as required" checks as necessary to assure reliable equipment operation. Specifications, including tolerances, for all electrical, mechanical, and other applicable measurement, adjustments, or both, shall be listed. The DMS Manufacturer shall provide the Department with a sample preventive maintenance schedule.

2. Data necessary for isolation and repair of failures or malfunctions, assuming the maintenance technicians to be capable of analytical reasoning using the information provided above. Accuracies, limits, and tolerances for all electrical, physical or other applicable measurements shall be described. General instructions shall be included for disassembly, overhaul, and reassembly, including shop specifications or performance requirements.

3. Detailed instructions shall be given only where failure to follow special procedures would result in damage to the equipment, improper operation, or danger to operating or maintenance personnel.

4. The parts list shall contain all information required to describe the characteristics of the individual parts, as required for identification. It shall include a list of all equipment within a group and list of all assemblies, subassemblies, and replacement parts of units. The tabular arrangement shall be in alphanumerical order of the schematic reference symbols and shall give the associated description, manufacturer's name, and part number. A table of contents or some other convenient means, e.g., appropriate grouping, shall be provided for the purpose of identifying major components, assemblies, etc.

FINAL DOCUMENTATION OF ALL HARDWARE AND SOFTWARE

Final documentation shall reflect all field changes and software modifications and shall be provided before final payment is made.

The DMS Manufacturer shall coordinate and take the lead on this effort with the installation contractor.

This documentation shall include drawings of conduit layouts, cable diagrams, wiring lists, cabinet layouts, wiring diagrams and schematics for all elements of the communications system. This shall also include detailed drawings identifying by cable type, color code and function, the routing of all conductors (pairs) in the communications system.

Four (4) copies of each As-Built installation shall be delivered to the Department. Copies shall go to:

1. Resident Construction Engineer
2. Maintenance supervisor
3. ITS Engineer
4. One will be left in the DMS

Drawings left in the DMS shall be attached to the door with stainless steel fasteners and protected from weather with a waterproof enclosure.

TRAINING

Operational and maintenance training for the entire system shall be provided to designated personnel during installation, testing and debugging. This training shall be provided through practical demonstrations, seminars and other related technical procedures. Training shall be limited to a maximum of eight (8) people and shall be provided at a time and location approved by the Department. The training shall include, but not be limited to, the following:

1. "Hands-on" operation of all sign control hardware
2. Explanation of all system commands, their function and usage
3. Insertion of data
4. Required preventative maintenance procedures
5. Servicing procedures
6. System "troubleshooting" or problem identification procedures

A minimum of eight (8) hours of instruction shall be provided for the operational and maintenance procedures for the system.

The DMS Manufacturer shall submit an agenda for the training and one complete set of training material (manual and schematic) along with the qualification of proposed instructors) to the Department for approval at least 30 calendar days before the training is to begin. The Department will review material and approve or request changes.

The DMS Manufacturer shall record the entire training on DVD and shall provide DVD’s to the Department for later use.

The training session(s) shall be conducted at a facility provided by the Department, after the completion of all system integration tests. The schedule of the training sessions shall be established by the DMS Manufacturer with the approval of the Department.

WARRANTY

The equipment and parts furnished for the dynamic message sign system shall be new, of the latest model, fabricated under high quality standards.

Equipment and parts furnished for the dynamic message sign system shall be warranted by the manufacturer to be free from defects in assembly or fabrication and materials for a minimum of two (2) years from the date of final acceptance. If component manufacture's warranties are for a longer period, they shall apply. Any parts or equipment found to be defective and/or determined to be a failure in design, materials and workmanship during the warranty period shall be replaced free of charge.

The Department shall be furnished with a certification stating that the equipment, parts, and material are covered by a warranty. Company contact information and warranty dates should be clearly shown.

All manufacturer's warranties and guarantees for the dynamic message sign system shall be transferred to the Department on the date of final acceptance.

Replacement parts covered in the section shall be shipped within one week of the Department notifying the DMS Manufacturer of a failed part or operational problem.

BASIS OF PAYMENT

The work performed and materials furnished in accordance with this Item and measured will be paid for at the contract unit price each for TRUSS MOUNTED LED DYNAMIC MESSAGE SIGN. This price shall be full compensation for furnishing, placing and testing all materials and equipment, and for all tools, labor, equipment, hardware, operational software package(s), supplies, support, personnel training, shop drawing and documentation necessary to complete the work

COMPLETION DATES

The Contractor for this project is advised that the construction activities for this improvement will be governed as specified in Article 108.05(a) of the Standard Specifications by two (2) completion dates:

1. An interim completion date of March 31, 2007, for the placement of 2-2100 ft. coils of fiber optic cable in the Pier 1 Abutment Room, as shown on the plans, for installation by others (I-44 ITS MoDot Job Number J6I1832) into MoDot conduit, and

2. A contract completion date of August 31, 2007 when all work necessary to complete this project shall be completed by and in operation by:

    a. A successful turn-on inspection of all surveillance camera locations and vehicle detection stations with monitoring capability at the TMC
    b. 30 calendar days of monitoring phase per the FINAL SYSTEM ACCEPTANCE special provision

c. 72-hour full operating test of the DMS shall be completed prior to the above completion date

The 90-day test period for the DMS is not included, however, must be successfully completed prior to finalizing the contract.

The Contractor shall conduct and coordinate the construction activities in such a manner so as to complete the above mentioned items of work on or before the specified dates. Should the Contractor fail to complete the work within the above mentioned completion and interim completion dates, the Contractor shall pay the Department liquidated damages as specified in Article 108.09 of the Standard Specifications.

SIGN PANEL-TYPE 3 (SPECIAL)

This work shall be per the applicable portions of SECTION 720. SIGN PANELS AND APPURTENANCES of the Standard Specifications except that the specification that covers sign legend material requirements in Article 720.02(c)/Article 1092.01 will be replaced with another special provision titled SPECIFCATION FOR PRISMATIC RETROREFLECTIVE SHEETING FOR HIGHWAY SIGNS.

SPECIFICATION FOR PRISMATIC RETROREFLECTIVE SHEETING FOR HIGHWAY SIGNS

I. SCOPE

This specification covers retroreflective sheeting intended for application on new or refurbished aluminum. The sheeting serves as the reflectorized background for sign messages applied, in opaque black or transparent colored inks, by the silk screen process and as material for cutout legends and symbols applied directly to the reflectorized background. This specification governs the physical characteristics of the material, inspection, testing, packaging, guarantee, incidentals and service requirements for the sheeting. All sheeting furnished under this specification shall be manufactured within 18 months of the delivery date. All materials must be supplied by the same manufacturer for warranty purposes.

II. SHEETING PROPERTIES

Retroreflective sheeting shall consist of glass spherical lens elements adhered to a synthetic and encapsulated by a flexible, transparent plastic having a smooth outer surface and shall meet the following requirements.

A. ADHESIVE. The sheeting shall have a protective liner and a pre-coated pressure sensitive adhesive, ASTM D 4956 Class 1. The adhesive shall have a protective liner which can be readily removed when tested in accordance with ASTM D 4956. The adhesive must be capable of being applied to new or refurbished aluminum without additional adhesive coats on the reflective sheeting or substrate material.

B. COLOR. The sheeting shall be uniform in color and devoid of streaks throughout the length of each roll. It shall conform to the latest appropriate standard color tolerance chart issued

by the U.S. Department of Transportation, Federal Highway Administration and to the daytime and nighttime color requirements of ASTM D 4956. Sheeting used for side by side overlay applications will require a Hunter Lab Delta E of less than 3.

C. COEFFICIENT OF RETROREFLECTION. When tested in accordance with ASTM E 810, the sheeting shall have the minimum values shown in the following table. The brightness of the sheeting when totally wet shall not be less than 90 percent of the values shown when tested in accordance with the standard rainfall test specified in Section 7.10.1 of AASHTO M 268-84.

Table IV Type ZZ
Minimum Coefficient of Retroreflection
Candelas per Lux per Square Meter of Material (Candelas per Foot Candle per Square Foot)

Type ZZ (0 degree rotation)

Observation Angle (Degree)	Entrance Angle (Degree)	White	Yellow	Red	Green	Blue	FYG	FY	FO
0.2	-4	725	545	145	75	35	580	435	255
0.2	+30	300	225	60	30	15	240	180	105
0.5	-4	450	340	90	45	20	360	270	160
0.5	+30	180	135	40	20	10	145	110	65
1.0	-4	130	100	30	15	6	105	80	50
1.0	+30	70	55	15	10	3	60	45	25

Type ZZ (90 degree rotation)

Observation Angle (Degree)	Entrance Angle (Degree)	White	Yellow	Red	Green	Blue	FYG	FY	FO
0.2	-4	415	305	85	42	17	340	145	85
0.2	+30	80	60	18	14	4.4	64	48	23
0.5	-4	350	260	70	35	16	280	210	80
0.5	+30	75	56	15	12	3.6	60	45	25
1.0	-4	110	80	18	11	4.8	87	64	22
1.0	+30	20	13	3	2	1	12	9	3

D. GLOSS. The sheeting surface shall exhibit an 85 degree gloss-meter rating of not less than 50 when tested in accordance with ASTM D 523.

E. DURABILITY. When processed and applied the sheeting shall be weather resistant. Accelerated weathering test will be performed for 1000 hours (300 hours for Orange/FO) in accordance with ASTM G 53. The cycle used will consist of 8 hours of light at 60 °C (140 °F), followed by 4 hours of condensation at 40 °C (104 °F). Outdoor weathering will entail an annual evaluation of material placed in an outdoor rack with a 45 degree angle and a Southern sun exposure. The sheeting will be evaluated for five years. Following weathering, the test specimens will be cleaned by immersing them in a 5 percent hydrochloric acid solution for 45 seconds, then rinsed with water and blotted dry with a soft

clean cloth. Following cleaning, the applied sheeting shall show no appreciable discoloration, cracking, streaking, crazing, blistering, or dimensional change. The sheeting shall exhibit not less than 80 percent of the minimum coefficient of retroreflection listed in Table IV when exposed to weathering.

F. SHRINKAGE. When tested according to ASTM D 4956, the sheeting shall not shrink in any dimension more than 0.8 mm (1/32 in.) in 10 minutes and not more than 3 mm (1/8 in.) in 24 hours.

G. FLEXIBILITY. The sheeting shall show no cracking when tested according to ASTM D 4956.

H. SPLICES. A single roll shall not contain more than 4 splices per 45-m (50-yd) length. The sheeting shall be overlapped not less than 5 mm (3/16 in.).

I. ADHESIVE BOND. The sheeting shall form a durable bond to smooth corrosion and weather-resistant surfaces and adhere securely when tested and evaluated according to ASTM D 4956.

J. POSITIONABILITY. Sheeting, with ASTM D 4956 Class 3 adhesive, used for manufacturing cut-out legends and borders, shall provide sufficient positionability during the fabrication process to permit removal and reapplication without damage to either the legend or sign background and shall have a plastic liner suitable for use on bed cutting machines. Thereinafter, all other adhesive and bond requirements contained in the specification shall apply.

K. THICKNESS. The thickness of the sheeting without the protective liner shall not be more than 0.6mm (0.025in).

L. PROCESSING - The sheeting shall permit cutting and color processing in accordance with the sheeting manufacturer's recommendations at temperatures of 15 to 38 °C (60 to 100 °F) and within a relative humidity range of 20 to 80 percent. The sheeting shall be heat resistant and permit forced curing without staining the applied or unapplied sheeting at temperatures being cleaned with VM&P naptha, mineral spirits, and turpentine.

Transparent color and opaque black inks shall be single component and low odor. The inks shall dry within 8 hours and not require clear coating. After color processing on white sheeting, the sheeting shall show no appreciable discoloration, cracking, streaking, crazing, blistering, or dimensional change when tested for durability (E).

Transparent color electronic cutting films shall be acrylic. After application to white sheeting, the films shall show no appreciable discoloration, cracking, streaking, crazing, blistering, or dimensional change when tested for durability (E).

Screened transparent colors or transparent acrylic electronic cutting films, on white sheeting, shall have initial coefficient of retroreflection values not less than 50 percent for yellow and red, and not less than 70 percent for green, blue, and brown of the 0.2 degree observation angle/-4.0 degree entrance angle values shown in Tables I through IV for the color being applied. After durability testing, the colors shall retain not less than 80 percent of the initial coefficient of retroreflection.

M. STORAGE. Stored under normal conditions and temperatures, the sheeting as supplied shall be suitable for use for a period of at least two years. With the exception of the mandrel test values specified, the sheeting shall continue to be pliable and workable.

N. IDENTIFICATION. The sheeting shall have a distinctive overall pattern in the sheeting unique to the individual manufacturer. If material orientation is required for optimum retroreflectivity, permanent marks indicating direction of orientation shall be incorporated into the face of the sheeting throughout the roll length. They shall be readily visible to the sign fabricator. Neither the overall pattern nor the orientation marks shall interfere with the reflectivity of the sheeting.

III. INSPECTION AND TESTING

Only suppliers whose products have been tested and approved in the Department's periodic Sheeting Study will be eligible to supply material. All individual batches and or lots of material shall be tested and approved by the Department. The Department reserves the right to sample and test delivered materials in accordance with Federal Specification LS-300. Any material that fails to meet the aforementioned specifications when sampled in accordance with Federal Specification LS-300 shall be immediately replaced with acceptable material, entirely at the vendor's expense including handling and transportation charges. Failed sheeting shall be picked up within 30 calendar days.

IV. FACILITY APPROVAL

Bid documents for roll materials shall contain a written declaration from the sheeting manufacturer stating that material storage conditions, fabrication and application processes, completed sign storage facilities, and packaging and shipping methods at the Department's Highway Sign Shop facility are acceptable and comply with applicable material warranty conditions.

V. PACKAGING

Rolled goods shall be supplied on a 75 mm (3 in.) I.D. fiber core the same width as the sheeting. The rolls shall be packed snugly in individual corrugated fiberboard boxes in such a manner that no damage or defacement will occur to the reflective sheeting during shipment or storage. Rolls of 305 mm (12.25 in.) or more in width may be packaged in multiples. Both ends of each box shall be clearly labeled as to type, color, adhesive, manufacturer's lot number, date of manufacture, and vendor's name. The material shall not be stacked over five cartons high.

VI. INCIDENTAL ITEMS

The vendor shall provide, at no cost to the user, the following incidental items for fabrication, packaging and installation of roll good materials. Quantities will be requested by the user and will not exceed those appropriate for use of the materials purchased.

A. Opaque Silk Screen Ink - Black (Single Component, Low odor)
B. Transparent Silk Screen Ink - All colors (Single Component, Low Odor, Clear Coating not required, 8 Hour Maximum Dry time).
C. Ink Thinner

D. Nylon Protective Mounting Washer - 1.6mm (1/16in) thick with a 9.5mm (3/8in) ID and a 22mm (7/8in) OD.
E. Packing Paper 457mm (18in), 610mm (24in), 762mm (30in), 915mm (36in), and 1220mm(48in) Widths by 92m (100yd) rolls packaging paper shall be cut to lengths and delivered in crates upon request.

VII. GUARANTEE

Sheeting used for permanent traffic control signs shall be guaranteed by the manufacturer to comply with the following:

A. Type ZZ sheeting processed and applied to new or refurbished aluminum shall perform effectively and maintain a uniform day/night color without streaks for a period of 12 years after erection.

B. The sheeting shall be considered unsatisfactory when it has deteriorated due to natural causes to the extent that any of the following conditions exist:
1. The sign has been determined by the purchaser to be ineffective when viewed from a moving vehicle under normal day and night driving conditions.
2. Permanent streaking or color variations (either day or night) develop on the sign surface.
3. The reflective value of a sign(s) at the 0.2° observation angle/-4° entrance angle is below the values shown in Table VI. The reflective values shall be determined by averaging random reflective measurements in accordance with the criteria in Table V. Reflective measurements will be made with a calibrated hand held retroreflectometer after wiping with a soft dry cloth to remove any dust, lint, or road film from the area to be measured.

C. When the sheeting does not perform in accordance with the guarantee, the manufacturer shall:
1. During the first 7 years after the sign is erected, provide all labor and materials to restore the sign surface to its original effectiveness.
2. During the next 3 years (5 years for ZZ) after the sign is erected, provide reflective materials to restore the sign surface to its original effectiveness. The purchaser will provide restoration labor.

D. The purchaser will date all signs by month and year when they are fabricated. This guarantee will be prorated accordingly for signs erected more than one year after fabrication.

Table V

Sign Size	1-5m^2 (1-50ft_2)	5-9m^2 (51-200ft_2)	Over 19m^2 (Over 200ft_2)
Min. Random Measurements/Sign (each)	5	9	15
Max. Readings Below Table II (each)	1	2	3

Table VI
Warranty Criteria
Minimum Coefficient of Retroreflection
(Candelas per Lux per Square Meter of Material)
Observation Angle 0.2°, Entrance Angle -4.0

Type ZZ

Color Sheeting				Transparent Colors Screened on White Transparent Acrylic EC Films on White			
	Initial	1-7 yrs	8-10yrs		Initial	1-7 yrs	8-10yrs
White	725	580	510		N/A	N/A	N/A
Yellow	545	435	380		275	220	190
Orange	270	215	190		N/A	N/A	N/A
Red	145	115	100		75	60	55
Green	75	60	50		55	44	40
Blue	35	30	25		20	16	14
FYG	580	465	400		N/A	N/A	N/A
FY	435	350	300		N/A	N/A	N/A
FO	255	200	200		N/A	N/A	N/A

VIII. SERVICE

All manufacturers for roll material shall furnish, at no cost, any product information, Material Safety Data Sheets, bulletins, technical service required to use the sheeting, and the name(s) and telephone number(s) of qualified service personnel that may be contacted during normal working hours to address any product related problems.

This specification supersedes “Specifications for Reflective Sheeting for Highway Signs,” dated February 1, 2004.

Effective November 1, 2005

RELOCATE EXISTING ITS EQUIPMENT – TYPE A

This item consists of relocating the existing ITS equipment, as shown on the plans. The Contractor shall be responsible for repairing or replacing any items damaged during the process to the satisfaction of the Engineer.

Upon approval of the Engineer, the Contractor shall relocate to the proposed CONTROLLER CABINET TYPE III, SPECIAL (AIR CONDITIONER):

1. The existing PSBC MP00.3 controller cabinet power supply circuitry, surge protection, and associated cabling
2. The existing PSBC MP00.3 controller cabinet IFS 1910 and associated cabling
3. The existing PSBC MP00.3 controller cabinet encoder and associated cabling
4. All existing CCTV and VVDC cabling entering existing controller cabinet

The location of any interim storage facility, prior to equipment relocation, shall be indoors and approved by the Engineer.

This work will be paid for at the contract unit price each for RELOCATE EXISTING ITS EQUIPMENT, TYPE A, which price shall be payment in full for relocating all of the above-listed equipment as specified above.

RELOCATE EXISTING ITS EQUIPMENT – TYPE B

This item consists of relocating the existing ITS equipment, as shown on the plans. The Contractor shall be responsible for repairing or replacing any items damaged during the process to the satisfaction of the Engineer.

Upon approval of the Engineer, the Contractor shall relocate to the proposed CONTROLLER CABINET TYPE III, SPECIAL (AIR CONDITIONER):

1. The existing PBSC MP01.5 controller cabinet power supply circuitry and protection
2. The existing PBSC MP01.5 controller cabinet VVDC cabling

The location of any interim storage facility, prior to equipment relocation, shall be indoors and approved by the Engineer.

This work will be paid for at the contract unit price each for RELOCATE EXISTING ITS EQUIPMENT-TYPE B, which price shall be payment in full for relocating all of the above-listed equipment as specified above.

RELOCATE EXISTING ITS EQUIPMENT – TYPE C

This item consists of relocating the existing ITS equipment, as shown on the plans. The Contractor shall be responsible for repairing or replacing any items damaged during the process to the satisfaction of the Engineer. Upon approval of the Engineer, the Contractor shall relocate the existing:

1. 0064 MP02.8 control cabinet and its power supply, surge protection, and all associated components/wiring
2. 006402.8A.06C system components/wiring
3. 006402.8W012D system components/wiring

The location of any interim storage facility, prior to equipment relocation, shall be indoors and approved by the Engineer.

This work will be paid for at the contract unit price each for RELOCATE EXISTING ITS EQUIPMENT, TYPE C, which price shall be payment in full for relocating all of the above-listed equipment as specified above.

REMOVE EXISTING ITS EQUIPMENT

This item consists of removing the existing ITS equipment, as shown on the plans. The existing ITS equipment shall remain in operation until the new ITS equipment is ready for operation. The Contractor shall be responsible for repairing or replacing any items damaged during the process

to the satisfaction of the Engineer. Upon approval of the Engineer, the Contractor shall remove the following ITS equipment:

1. PSBC MP00.3
    a. Controller Cabinet (see RELOCATING EXISTING ITS EQUIPMENT-TYPE A)
2. PSBC MP01.5
    a. Controller Cabinet (see RELOCATING EXISTING ITS EQUIPMENT-TYPE B)
3. PSBC MP02.4
    a. Light pole
4. PSBC MP02.6
    a. Controller Cabinet
    b. CCTV camera installation
    c. VVD camera installation
5. 0064 MP2.8
    a. Service installation w/wood pole
    b. T1 telemetry equipment (IFS D1220 modem) and associated junction box

The removed equipment shall remain the property of the State of Illinois. Upon removal of the existing ITS equipment specified above, the Contractor shall deliver such equipment to the Illinois Department of Transportation, Regional Complex, 1102 Eastport Plaza Drive, Collinsville, Illinois 62234, ITS Equipment Room #120B. The location of any interim storage facility, prior to equipment delivery, shall be indoors and approved by the Engineer.

This work will be paid for at the contract unit price each for REMOVE EXISTING ITS EQUIPMENT, which price shall be payment in full for removing all of the above-listed equipment and delivering the equipment as specified above.

FURNISH AND INSTALL TRUSS DAMPER

This work shall consist of furnishing and installing a truss damper on an aluminum overhead span sign structure. The damper shall be attached to the overhead sign structure as indicated on the attached details.

The damper design shall be similar to those shown in the plans. The Contractor shall submit shop drawings for the damper for approval prior to fabrication and before any materials are ordered.

This work will be paid for at the contract unit price each for FURNISH AND INSTALL TRUSS DAMPER, which price shall include providing the shop drawings, fabricating the clamp, furnishing and installing the damper complete with all necessary hardware.

FLASHER CONTROLLER WITHOUT CABINET

This work shall consist of furnishing and installing a flasher controller inside of the proposed controller cabinet, which is located in the PSBC MP01.4 CONTROLLER CABINET TYPE III, SPECIAL shown on the plans and in accordance with Section 858 and Article 1073.02 of the Standard Specifications with the following exception:

- A cabinet shall not be furnished nor installed for the flasher controller.

This work will be paid for at the contract unit price each for FLASHER CONTROLLER WITHOUT CABINET, which price shall be payment in full for furnishing and installing the flasher controller complete.

LIGHT POLE FOUNDATION, 28" DIAMETER

The light pole foundation shall be in accordance with Section 836 of the Standard Specifications except Article 836.03(d) shall be deleted.

MODIFY EXISTING CONCRETE FOUNDATION

This item of work shall consist of modifying the existing controller concrete foundation so that the proposed Type III Controller Cabinet, Special (Air Conditioned) fits on it per applicable portions of Standard 878001 and Section 878 of the Standard Specifications and as directed by the Engineer.

The existing foundation shall be removed to a depth as shown on the plans. The cost of disposal of the debris outside of the right of way shall be included in the unit cost of this work. The existing conduits shall remain in place and be protected. The adjacent area shall be excavated to the full depth of the existing foundation and the foundation modification formed with new anchor bolts secured in place per the controller cabinet installation requirements, subject to the Engineer's approval. New anchor bolts shall be per Article 1006.09 of the Standard Specifications. No. 4 (1/2") reinforcement bars per Article 1006.10 shall be installed three (3) inches in the prepared top and exposed sides of the existing foundation as shown on the plans.

This work shall be paid for at the contract unit price each for MODIFY EXISTING CONCRETE 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 plans.

AGGREGATE SHIPPING TICKETS (BDE)
Effective: January 1, 2006

Add the following to Article 1003.01 of the Standard Specifications:

"(f) Shipping Tickets. Shipping tickets for the material shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Designation of Aggregate Information on Shipping Tickets"."

Add the following to Article 1004.01 of the Standard Specifications:

"(f) Shipping Tickets. Shipping tickets for the material shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Designation of Aggregate Information on Shipping Tickets"."

Add the following to Article 1005.01 of the Supplemental Specifications:

"(d) Shipping Tickets. Shipping tickets for the material shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Designation of Aggregate Information on Shipping Tickets"."

AUTHORITY OF RAILROAD ENGINEER (BDE)
Effective: July 1, 2004

Revise Article 105.02 of the Standard Specifications to read:

"**105.02 Authority of Railroad Engineer.** Whenever the safety of railroad traffic is concerned, the Railroad Engineer will have jurisdiction over safety measures to be taken and his/her decision as to the methods, procedures, and measures used shall be final, and any and all Contractors performing work near or about the railroad shall be governed by such decision. Instructions to the Contractor by the Railroad Engineer will be given through the Engineer. Work ordered as specified herein will be classified and paid for according to Article 104.02. Work performed for the Contractor's convenience will not be paid for separately but shall be considered as included in the contract."

CONCRETE ADMIXTURES (BDE)
Effective: January 1, 2003 Revised: July 1, 2004

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

"(b) Admixtures. Except as specified, the use of admixtures to increase the workability or to accelerate the hardening of the concrete will be permitted only when approved in writing by the Engineer. The Department will maintain an Approved List of Concrete Admixtures. When the Department permits the use of a calcium chloride accelerator, it shall be according to Article 442.02, Note 5.

When the atmosphere or concrete temperature is 18 °C (65 °F) or higher, a retarding admixture meeting the requirements of Article 1021.03 shall be used in the Class BD Concrete and portland cement concrete bridge deck overlays. The amount of retarding admixture to be used will be determined by the Engineer. The proportions of the ingredients of the concrete shall be the same as without the retarding admixture except

that the amount of mixing water shall be reduced, as may be necessary, in order to maintain the consistency of the concrete as required. In addition, a high range water-reducing admixture shall be used in Class BD Concrete. The amount of high range water-reducing admixture will be determined by the Engineer. At the option of the Contractor, a water-reducing admixture may be used. Type I cement shall be used.

For Class PC and PS Concrete, a retarding admixture may be added to the concrete mixture when the concrete temperature is 18 °C (65 °F) or higher. Other admixtures may be used when approved by the Engineer, or if specified by the contract. If an accelerating admixture is permitted by the Engineer, it shall be the non-chloride type.

At the Contractor's option, admixtures in addition to an air-entraining admixture may be used for Class PP-1 concrete. The accelerator shall be the non-chloride type. If a water-reducing or retarding admixture is used, the cement factor may be reduced a maximum 18 kg/cu m (0.30 hundredweight/cu yd). If a high range water-reducing admixture is used, the cement factor may be reduced a maximum 36 kg/cu m (0.60 hundredweight/cu yd). Cement factor reductions shall not be cumulative when using multiple admixtures. An accelerator shall always be added prior to a high range water-reducing admixture, if both are used.

If Class C fly ash or ground granulated blast-furnace slag is used in Class PP-1 concrete, a water-reducing or high range water-reducing admixture shall be used. However, the cement factor shall not be reduced if a water-reducing, retarding, or high range water-reducing admixture is used. In addition, an accelerator shall not be used.

For Class PP-2 or PP-3 concrete, a non-chloride accelerator followed by a high range water-reducing admixture shall be used, in addition to the air-entraining admixture. For Class PP-3 concrete, the non-chloride accelerator shall be calcium nitrite.

For Class PP-2 or PP-3 concrete, the Contractor has the option to use a water-reducing admixture. A retarding admixture shall not be used unless approved by the Engineer. A water-reducing, retarding, or high range water-reducing admixture shall not be used to reduce the cement factor.

When the air temperature is less than 13 °C (55 °F) for Class PP-1 or PP-2 concrete, the non-chloride accelerator shall be calcium nitrite.

For Class PP-4 concrete, a high range water-reducing admixture shall be used in addition to the air-entraining admixture. The Contractor has the option to use a water-reducing admixture. An accelerator shall not be used. For stationary or truck mixed concrete, a retarding admixture shall be used to allow for haul time. The Contractor has the option to use a mobile portland cement concrete plant according to Article 1103.04, but a retarding admixture shall not be used unless approved by the Engineer. A water-reducing, retarding, or high range water-reducing admixture shall not be used to reduce the cement factor.

If the Department specifies a calcium chloride accelerator for Class PP-1 concrete, the maximum chloride dosage shall be 1.0 L (1.0 quart) of solution per 45 kg (100 lb) of

cement. The dosage may be increased to a maximum 2.0 L (2.0 quarts) per 45 kg (100 lb) of cement if approved by the Engineer. If the Department specifies a calcium chloride accelerator for Class PP-2 concrete, the maximum chloride dosage shall be 1.3 L (1.3 quarts) of solution per 45 kg (100 lb) of cement. The dosage may be increased to a maximum 2.6 L (2.6 quarts) per 45 kg (100 lb) of cement if approved by the Engineer.

For Class PV, MS, SI, RR, SC and SH concrete, at the option of the Contractor, or when specified by the Engineer, a water-reducing admixture or a retarding admixture may be used. The amount of water-reducing admixture or retarding admixture permitted will be determined by the Engineer. The air-entraining admixture and other admixtures shall be added to the concrete separately, and shall be permitted to intermingle only after they have separately entered the concrete batch. The sequence, method and equipment for adding the admixtures shall be approved by the Engineer. The water-reducing admixture shall not delay the initial set of the concrete by more than one hour. Type I cement shall be used.

When a water-reducing admixture is added, a cement factor reduction of up to 18 kg/cu m (0.30 hundredweight/cu yd), from the concrete designed for a specific slump without the admixture, will be permitted for Class PV, MS, SI, RR, SC and SH concrete. When an approved high range water-reducing admixture is used, a cement factor reduction of up to 36 kg/cu m (0.60 hundredweight/cu yd), from a specific water cement/ratio without the admixture, will be permitted based on a 14 percent minimum water reduction. This is applicable to Class PV, MS, SI, RR, SC and SH concrete. A cement factor below 320 kg/cu m (5.35 hundredweight/cu yd) will not be permitted for Class PV, MS, SI, RR, SC and SH concrete. A cement factor reduction will not be allowed for concrete placed underwater. Cement factor reductions shall not be cumulative when using multiple admixtures.

For use of admixtures to control concrete temperature, refer to Articles 1020.14(a) and 1020.14(b).

The maximum slumps given in Table 1 may be increased to 175 mm (7 in.) when a high range water-reducing admixture is used for all classes of concrete except Class PV and PP."

Revise Section 1021 of the Standard Specifications to read:

"SECTION 1021. CONCRETE ADMIXTURES"

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

Prior to inclusion of a product on the Department's Approved List of Concrete Admixtures, the manufacturer shall submit a report prepared by an independent laboratory accredited by the AASHTO Accreditation Program. The report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications.

Tests shall be conducted using materials and methods specified on a "test" concrete and a "reference" concrete, together with a certification that no changes have been made in the formulation of the material since the performance of the tests. Per the manufacturer's option, the cement content for all required tests shall either be according to applicable specifications or 335 kg/cu m (5.65 cwt/cu yd). Compressive strength test results for six months and one year will not be required.

In addition to the report, the manufacturer shall submit AASHTO T 197 water content and set time test results on the standard cement used by the Department. The test and reference concrete mixture shall contain a cement content of 335 kg/cu m (5.65 cwt/cu yd). The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by the AASHTO Accreditation Program.

Prior to the approval of an admixture, the Engineer may conduct all or part of the applicable tests on a sample that is representative of the material to be furnished. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 335 kg/cu m (5.65 cwt/cu yd). For freeze-thaw testing, the Department will perform the test according to Illinois Modified AASHTO T 161, Procedure B.

The manufacturer shall include in the submittal the following information according to ASTM C 494; the average and manufacturing range of specific gravity, the average and manufacturing range of solids in the solution, and the average and manufacturing range of pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

When test results are more than seven years old, the manufacturer shall re-submit the infrared spectrophotometer trace and the report prepared by an independent laboratory accredited by the AASHTO Accreditation Program.

All admixtures, except chloride-based accelerators, shall contain no more than 0.3 percent chloride by mass (weight).

1021.02 Air-Entraining Admixtures. Air-entraining admixtures shall conform to the requirements of AASHTO M 154.

If the manufacturer certifies that the air-entraining admixture is an aqueous solution of Vinsol resin that has been neutralized with sodium hydroxide (caustic soda), testing for compliance with the requirements may be waived by the Engineer. In the certification, the manufacturer shall show complete information with respect to the formulation of the solution, including the number of parts of Vinsol resin to each part of sodium hydroxide. Before the approval of its use is granted, the Engineer will test the solution for its air-entraining quality in comparison with a solution prepared and kept for that purpose.

1021.03 Retarding and Water-Reducing Admixtures. The admixture shall comply with the following requirements:

(a) The retarding admixture shall comply with the requirements of AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).

(b) The water-reducing admixture shall comply with the requirements of AASHTO M 194, Type A.

(c) The high range water-reducing admixture shall comply with the requirements of AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).

When a Type F or Type G high range water-reducing admixture is used, water-cement ratios shall be a minimum of 0.32.

Type F or Type G admixtures may be used, subject to the following restrictions:

For Class MS, SI, RR, SC and SH concrete, the water-cement ratio shall be a maximum of 0.44.

The Type F or Type G admixture shall be added at the jobsite unless otherwise directed by the Engineer. The initial slump shall be a minimum of 40 mm (1 1/2 in.) prior to addition of the Type F or Type G admixture, except as approved by the Engineer.

When a Type F or Type G admixture is used, retempering with water or with a Type G admixture will not be allowed. An additional dosage of a Type F admixture, not to exceed 40 percent of the original dosage, may be used to retemper concrete once, provided set time is not unduly affected. A second retempering with a Type F admixture may be used for all classes of concrete except Class PP and SC, provided that the dosage does not exceed the dosage used for the first retempering, and provided that the set time is not unduly affected. No further retempering will be allowed.

Air tests shall be performed after the addition of the Type F or Type G admixture.

1021.04 Set Accelerating Admixtures. The admixture shall comply with the requirements of AASHTO M 194, Type C (accelerating) or Type E (water reducing and accelerating)"

CURING AND PROTECTION OF CONCRETE CONSTRUCTION (BDE)
Effective: January 1, 2004 Revised: November 1, 2005

Revise the second and third sentences of the eleventh paragraph of Article 503.06 of the Standard Specifications to read:

"Forms on substructure units shall remain in place at least 24 hours. The method of form removal shall not result in damage to the concrete."

Delete the twentieth paragraph of Article 503.22 of the Standard Specifications.

Revise the "Unit Price Adjustments" table of Article 503.22 of the Standard Specifications to read:

"UNIT PRICE ADJUSTMENTS	
Type of Construction	Percent Adjustment in Unit Price
For concrete in substructures, culverts (having a waterway opening of more than 1 sq m (10 sq ft)), pump houses, and retaining walls (except concrete pilings, footings and foundation seals):	
When protected by:	
Protection Method II	115%
Protection Method I	110%
For concrete in superstructures:	
When protected by:	
Protection Method II	123%
Protection Method I	115%
For concrete in footings:	
When protected by:	
Protection Method I, II or III	107%
For concrete in slope walls:	
When protected by:	
Protection Method I	107%"

Delete the fourth paragraph of Article 504.05(a) of the Standard Specifications.

Revise the second and third sentences of the fifth paragraph of Article 504.05(a) of the Standard Specifications to read:

"All test specimens shall be cured with the units according to Article 1020.13."

Revise the first paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

"Curing and Low Air Temperature Protection. The curing and protection for precast, prestressed concrete members shall be according to Article 1020.13 and this Article."

Revise the first sentence of the second paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

"For curing, air vents shall be in place and shall be so arranged that no water can enter the void tubes during the curing of the members."

Revise the first sentence of the third paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

"As soon as each member is finished, the concrete shall be covered with curing material according to Article 1020.13."

Revise the eighth paragraph of Article 504.06(c)(6) of the Standard Specifications to read:

"The prestressing force shall not be transferred to any member before the concrete has attained the compressive strength of 28,000 kPa (4000 psi) or other higher compressive release strength specified on the plans, as determined from tests of 150 mm (6 in.) by 300 mm (12 in.) cylinders cured with the member according to Article 1020.13. Members shall not be shipped until 28-day strengths have been attained and members have a yard age of at least 4 days."

Delete the third paragraph of Article 512.03(a) of the Standard Specifications.

Delete the last sentence of the second paragraph of Article 512.04(d) of the Standard Specifications.

Revise the "Index Table of Curing and Protection of Concrete Construction" table of Article 1020.13 of the Standard Specifications to read:

"INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
Cast-in-Place Concrete: 11/			
Pavement Shoulder	1020.13(a)(1)(2)(3)(4)(5) 3/ 5/	3	1020.13(c)
Base Course Base Course Widening	1020.13(a)(1)(2)(3)(4)(5) 1/ 2/	3	1020.13(c)
Driveway Median Curb Gutter Curb and Gutter Sidewalk Slope Wall	1020.13(a)(1)(2)(3)(4)(5) 4/ 5/	3	1020.13(c) 16/
Paved Ditch Catch Basin Manhole Inlet Valve Vault	1020.13(a)(1)(2)(3)(4)(5) 4/	3	1020.13(c)
Pavement Patching	1020.13(a)(1)(2)(3)(4)(5) 2/	3 12/	1020.13(c)
Pavement Replacement	1020.13(a)(1)(2)(3)(4)(5) 1/ 2/	3	442.06(h) and 1020.13(c)
Railroad Crossing	1020.13(a)(3)(5)	1	1020.13(c)
Piles	1020.13(a)(3)(5)	7	1020.13(e)(1)(2)(3)
Footings Foundation Seals	1020.13(a)(1)(2)(3)(4)(5) 4/ 6/	7	1020.13(e)(1)(2)(3)
Substructure	1020.13(a)(1)(2)(3)(4)(5) 1/ 7/	7	1020.13(e)(1)(2)(3)
Superstructure (except deck)	1020.13(a)(1)(2)(3)(5) 8/	7	1020.13(e)(1)(2)
Deck	1020.13(a)(5)	7	1020.13(e)(1)(2) 17/
Retaining Walls	1020.13(a)(1)(2)(3)(4)(5) 1/ 7/	7	1020.13(e)(1)(2)
Pump Houses	1020.13(a)(1)(2)(3)(4)(5) 1/	7	1020.13(e)(1)(2)
Culverts	1020.13(a)(1)(2)(3)(4)(5) 4/ 6/	7	1020.13(e)(1)(2) 18/
Other Incidental Concrete	1020.13(a)(1)(2)(3)(5)	3	1020.13(c)

Precast Concrete: [11/]			
Bridge Beams Piles Bridge Slabs Nelson Type Structural Member	1020.13(a)(3)(5) [9/ 10/]	As required. [13/]	504.06(c)(6), 1020.13(e)(2) [19/]
All Other Precast Items	1020.13(a)(3)(4)(5) [2/ 9/ 10/]	As required. [14/]	504.06(c)(6), 1020.13(e)(2) [19/]
Precast, Prestressed Concrete: [11/]			
All Items	1020.13(a)(3)(5) [9/ 10/]	Until strand tensioning is released. [15/]	504.06(c)(6), 1020.13(e)(2) [19/]

Notes-General:

1/ Type I, membrane curing only

2/ Type II, membrane curing only

3/ Type III, membrane curing only

4/ Type I, II and III membrane curing

5/ Membrane curing will not be permitted between November 1 and April 15.

6/ The use of water to inundate footings, foundation seals or the bottom slab of culverts is permissible when approved by the Engineer, provided the water temperature can be maintained at 7 °C (45 °F) or higher.

7/ Asphalt Emulsion for Waterproofing may be used in lieu of other curing methods when specified and permitted according to Article 503.18.

8/ On non-traffic surfaces which receive protective coat according to Article 503.19, a linseed oil emulsion curing compound may be used as a substitute for protective coat and other curing methods. The linseed emulsion curing compound will be permitted between April 16 and October 31 of the same year, provided it is applied with a mechanical sprayer according to Article 1101.09 (b), and meets the material requirements of Article 1022.07.

9/ Steam curing (heat and moisture) is acceptable and shall be accomplished by the method specified in Article 504.06(c)(6).

10/ A moist room according to AASHTO M 201 is acceptable for curing.

11/ If curing is required and interrupted because of form removal for cast-in-place concrete items, precast concrete products, or precast prestressed concrete products, the curing shall be resumed within two hours from the start of the form removal.

12/ Curing maintained only until opening strength is attained, with a maximum curing period of three days.

13/ The curing period shall end when the concrete has attained the mix design strength. The producer has the option to discontinue curing when the concrete has attained 80 percent of the mix design strength or after seven days. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.

14/ The producer shall determine the curing period or may elect to not cure the product. All strength test specimens shall remain with the units and shall be subjected to the same curing method and environmental condition as the units, until the time of testing.

15/ The producer has the option to continue curing after strand release.

16/ When structural steel or structural concrete is in place above slope wall, Article 1020.13(c) shall not apply. The protection method shall be according to Article 1020.13(e)(1).

17/ When Article 1020.13(e)(2) is used to protect the deck, the housing may enclose only the bottom and sides. The top surface shall be protected according to Article 1020.13(e)(1).

18/ For culverts having a waterway opening of 1 sq m (10 sq ft) or less, the culverts may be protected according to Article 1020.13(e)(3).

19/ The seven day protection period in the first paragraph of Article 1020.13(e)(2) shall not apply. The protection period shall end when curing is finished. For the third paragraph of Article 1020.13(e)(2), the decrease in temperature shall be according to Article 504.06(c)(6)."

Add the following to Article 1020.13(a) of the Standard Specifications:

"(5) Wetted Cotton Mat Method. After the surface of concrete has been textured or finished, it shall be covered immediately with dry cotton mats. The cotton mats shall be placed in a manner which will not mar the concrete surface. A texture resulting from the cotton mat material is acceptable. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. For bridge decks, a foot bridge shall be used to place and wet the cotton mats.

The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without marring the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 1.2 m (4 ft) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

After placement of the soaker hoses, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets.

For construction items other than bridge decks, soaker hoses or a continuous wetting system will not be required if the alternative method keeps the cotton mats wet. Periodic wetting of the cotton mats is acceptable.

For areas inaccessible to the cotton mats on bridge decks, curing shall be according to Article 1020.13(a)(3)."

Revise the first paragraph of Article 1020.13(c) of the Standard Specifications to read:

"Protection of Portland Cement Concrete, Other Than Structures, From Low Air Temperatures. When the official National Weather Service forecast for the construction area predicts a low of 0 ºC (32 ºF), or lower, or if the actual temperature drops to 0 ºC (32 ºF), or lower, concrete less than 72 hours old shall be provided at least the following protection:"

Delete Article 1020.13(d) and Articles 1020.13(d)(1),(2),(3),(4) of the Standard Specifications.

Revise the first five paragraphs of Article 1020.13(e) of the Standard Specifications to read:

"Protection of Portland Cement Concrete Structures From Low Air Temperatures. When the official National Weather Service Forecast for the construction area predicts a low

below 7 ºC (45 ºF), or if the actual temperature drops below 7 ºC (45 ºF), concrete less than 72 hours old shall be provided protection. Concrete shall also be provided protection when placed during the winter period of December 1 through March 15. Concrete shall not be placed until the materials, facilities, and equipment for protection are approved by the Engineer.

When directed by the Engineer, the Contractor may be required to place concrete during the winter period. If winter construction is specified, the Contractor shall proceed with the construction, including concrete, excavation, pile driving, steel erection, and all appurtenant work required for the complete construction of the item, except at times when weather conditions make such operations impracticable.

Regardless of the precautions taken, the Contractor shall be responsible for protection of the concrete placed and any concrete damaged by cold temperatures shall be removed and replaced at no additional cost to the Department."

Add the following at the end of the third paragraph of Article 1020.13(e)(1) of the Standard Specifications:

"The Contractor shall provide means for checking the temperature of the surface of the concrete during the protection period."

Revise the second sentence of the first paragraph of Article 1020.13(e)(2) of the Standard Specifications to read:

"The Contractor shall provide means for checking the temperature of the surface of the concrete or air temperature within the housing during the protection period."

Delete the last sentence of the first paragraph of Article 1020.13(e)(3) of the Standard Specifications.

Add the following Article to Section 1022 of the Standard Specifications:

"**1022.06 Cotton Mats.** Cotton mats shall consist of a cotton fill material, minimum 400 g/sq m (11.8 oz/sq yd), covered with unsized cloth or burlap, minimum 200 g/sq m (5.9 oz/sq yd), and be tufted or stitched to maintain stability.

Cotton mats shall be in a condition satisfactory to the Engineer. Any tears or holes in the mats shall be repaired."

Add the following Article to Section 1022 of the Standard Specifications:

"**1022.07 Linseed Oil Emulsion Curing Compound.** Linseed oil emulsion curing compound shall be composed of a blend of boiled linseed oil and high viscosity, heavy bodied linseed oil emulsified in a water solution. The curing compound shall meet the requirements of a Type I according to Article 1022.01, except the drying time requirement will be waived. The oil phase shall be 50 ± 4 percent by volume. The oil phase shall consist of 80 percent by mass (weight) boiled linseed oil and 20 percent by mass (weight) Z-8 viscosity linseed oil. The water phase shall be 50 ± 4 percent by volume."

Revise Article 1020.14 of the Standard Specifications to read:

"**1020.14 Temperature Control for Placement.** Temperature control for concrete placement shall be according to the following.

(a) Temperature Control other than Structures. The temperature of the concrete immediately before placement shall be a minimum of 10 °C (50 °F) and a maximum of 32 °C (90 °F). Aggregates and/or water shall be heated or cooled as necessary to produce concrete within these temperature limits.

When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the Department's Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

Plastic concrete temperatures up to 35 °C (96 °F), as placed, may be permitted provided job site conditions permit placement and finishing without excessive use of water on and/or overworking of the surface. The occurrence within 24 hours of unusual surface distress shall be cause to revert to a maximum 32 °C (90 °F) plastic concrete temperature.

Concrete shall not be placed when the air temperature is below 5 °C (40 °F) and falling or below 2 °C (35 °F), without permission of the Engineer. When placing of concrete is authorized during cold weather, the Engineer may require the water and/or the aggregates to be heated to between 20 °C (70 °F) and 65 °C (150 °F). The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.

For pavement patching, refer to Article 442.06(e) for additional information on temperature control for placement.

(b) Temperature Control for Structures. The temperature of the concrete, as placed in the forms, shall be a minimum of 10 °C (50 °F) and a maximum of 32 °C (90 °F). Aggregates and/or water shall be heated or cooled as necessary to produce concrete within these temperature limits. When insulated forms are used, the temperature of the concrete mixture shall not exceed 25 °C (80 °F). If the Engineer determines that heat of hydration might cause excessive temperatures in the concrete, the concrete shall be placed at a temperature between 10 °C (50 °F) and 15 °C (60 °F). When concrete is placed in contact with previously placed concrete, the temperature of the concrete may be increased as required to offset anticipated heat loss.

Concrete shall not be placed when the air temperature is below 7 °C (45 °F) and falling or below 4 °C (40 °F), without permission of the Engineer. When placing of concrete is

authorized during cold weather, the Engineer may require the water and/or the aggregates to be heated to between 20 °C (70 °F) and 65 °C (150 °F). The aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might damage the materials. No frozen aggregates shall be used in the concrete.

When the temperature of the plastic concrete reaches 30 °C (85 °F), an approved retarding admixture shall be used or the approved water reducing admixture in use shall have its dosage increased by 50 percent over the dosage recommended on the Department's Approved List of Concrete Admixtures for the temperature experienced. The amount of retarding admixture to be used will be determined by the Engineer. This requirement may be waived by the Engineer when fly ash compensated mixtures are used.

(c) Temperature. The concrete temperature shall be determined according to ASTM C 1064."

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
Effective: September 1, 2000 Revised: June 22, 2005

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR part 26 and listed in the DBE Directory or most recent addendum.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100% state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100% state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor:

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE firms performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. This determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform 5.0% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set forth in this Special Provision:

(a) The bidder documents that firmly committed DBE participation has been obtained to meet the goal; or

(b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders may consult the DBE Directory as a reference source for DBE companies certified by the Department. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217)785-4611, or by visiting the Department's web site at www.dot.il.gov.

BIDDING PROCEDURES. Compliance with the bidding procedures of this Special Provision is required prior to the award of the contract and the failure of the as-read low bidder to comply will render the bid not responsive.

(a) In order to assure the timely award of the contract, the as-read low bidder shall submit a Disadvantaged Business Utilization Plan on Department form SBE 2026 within seven (7) working days after the date of letting. To meet the seven (7) day requirement, the bidder may send the Plan by certified mail or delivery service within the seven (7) working day period. If a question arises concerning the mailing date of a Plan, the mailing date will be established by the U.S. Postal Service postmark on the original certified mail receipt

from the U.S. Postal Service or the receipt issued by a delivery service. It is the responsibility of the bidder to ensure that the postmark or receipt date is affixed within the seven (7) working days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Plan is to be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). It is the responsibility of the bidder to obtain confirmation of telefax delivery. The Department will not accept a Utilization Plan if it does not meet the seven (7) day submittal requirement and the bid will be declared not responsive. In the event the bid is declared not responsive due to a failure to submit a Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration or to extend the time for award.

(b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.

(c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. The signatures on these forms must be original signatures. All elements of information indicated on the said form shall be provided, including but not limited to the following:

(1) The name and address of each DBE to be used;

(2) A description, including pay item numbers, of the commercially useful work to be done by each DBE;

(3) The price to be paid to each DBE for the identified work specifically stating the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;

(4) A commitment statement signed by the bidder and each DBE evidencing availability and intent to perform commercially useful work on the project; and

(5) If the bidder is a joint venture comprised of DBE firms and non-DBE firms, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s).

(d) The contract will not be awarded until the Utilization Plan submitted by the bidder is approved. The Utilization Plan will be approved by the Department if the Plan commits

sufficient commercially useful DBE work performance to meet the contract goal. The Utilization Plan will not be approved by the Department if the Plan does not commit sufficient DBE performance to meet the contract goal unless the bidder documents that it made a good faith effort to meet the goal. The good faith procedures of Section VIII of this special provision apply. If the Utilization Plan is not approved because it is deficient in a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no less than a five (5) working day period in order to cure the deficiency.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR part 26.55, the provisions of which govern over the summary contained herein.

(a) DBE as the Contractor: 100% goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE firm does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100% goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100% goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE firm does not count toward the DBE goal.

(d) DBE as a trucker: 100% goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contact. Credit will be given for the full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.

(e) DBE as a material supplier:

(1) 60% goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.

(2) 100% goal credit for the cost of materials or supplies obtained from a DBE manufacturer.

(3) 100% credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a regular dealer or manufacturer.

GOOD FAITH EFFORT PROCEDURES. If the bidder cannot obtain sufficient DBE commitments to meet the contract goal, the bidder must document in the Utilization Plan the good faith efforts made in the attempt to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which could reasonably be expected to obtain sufficient DBE participation. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts are not good faith efforts; rather, the bidder is expected to have taken those efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

(a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a

firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable.

(5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

(b) If the Department determines that the bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that a good faith effort has not been made, the Department will notify the bidder of that preliminary determination by contacting the responsible company official designated in the Utilization Plan. The preliminary determination shall include a statement of reasons why good faith efforts have not been found, and may include additional good faith efforts that the bidder could take. The notification will designate a five (5) working day period during which the bidder shall take additional efforts. The bidder is not limited by a statement of additional efforts, but may take other action beyond any stated additional efforts in order to obtain additional DBE commitments. The bidder shall submit an amended Utilization Plan if additional DBE commitments to meet the contract goal are secured. If additional DBE commitments sufficient to meet the contract goal are not secured, the bidder shall report the final good faith efforts made in the time allotted. All additional efforts taken by the bidder will be considered as part of the bidder's good faith efforts. If the bidder is not able to meet the goal after taking additional efforts, the Department will make a pre-final determination of the good faith efforts of the bidder and will notify the designated responsible company official of the reasons for an adverse determination.

(c) The bidder may request administrative reconsideration of a pre-final determination adverse to the bidder within the five (5) working days after the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The pre-final determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issue of whether an adequate good faith effort was made to meet the contract goal. In addition, the request shall be considered a consent by the bidder to extend the time for award. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten (10) working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal.

(a) No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.

(b) All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan. If a DBE listed in the Utilization Plan is terminated for reasons other than convenience, or fails to complete

its work on the contract for any reason, the Contractor shall make good faith efforts to find another DBE to substitute for the terminated DBE. The good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, but only to the extent needed to meet the contract goal or the amended contract goal. The Contractor shall notify the Bureau of Small Business Enterprises of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Bureau and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Bureau will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.

(c) The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefor to the DBE by the Contractor, but not later than thirty (30) calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Report on Department form SBE 2115 to the Regional Engineer. If full and final payment has not been made to the DBE, the Report shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Plan, the Department will deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.

(d) The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

(e) Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of “Good Faith Effort Procedures” of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department.

EROSION AND SEDIMENT CONTROL DEFICIENCY DEDUCTION (BDE)
Effective: August 1, 2001 Revised: November 1, 2001

When the Engineer is notified or determines an erosion and/or sediment control deficiency(s) exists, he/she will direct the Contractor in writing to correct the deficiency. The Contractor shall

then correct the deficiency within 24 hours. The deficiency may be any lack of repair, maintenance, or implementation of erosion and/or sediment control devices included in the contract, or any failure to comply with the conditions of the National Pollutant Discharge Elimination System (NPDES) Storm Water Permit for Construction Site Activities.

If the Contractor fails to correct the deficiency(s) within 24 hours, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The time period will begin with the initial written notification to the Contractor and end with the Engineer's acceptance of the corrected work. The per calendar day deduction will be either $1000.00 or 0.05 percent of the awarded contract value, whichever is greater.

If the Contractor fails to respond, the Engineer may correct the deficiencies and deduct the cost from monies due or which may become due the Contractor. This corrective action shall in no way relieve the Contractor of his/her contractual requirements or responsibilities.

FLAGGER VESTS (BDE)
Effective: April 1, 2003 Revised: January 1, 2006

Revise the first sentence of Article 701.04(c)(1) of the Standard Specifications to read:

"The flagger shall be stationed to the satisfaction of the Engineer and be equipped with a fluorescent orange, fluorescent yellow/green or a combination of fluorescent orange and fluorescent yellow/green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-2004 for Conspicuity Class 2 garments and approved flagger traffic control signs conforming to Standard 702001 and Article 702.05(e)."

Revise Article 701.04(c)(6) of the Standard Specifications to read:

"(6) Nighttime Flagging. Flaggers shall be illuminated by an overhead light source providing a minimum vertical illuminance of 108 lux (10 fc) measured 300 mm (1 ft) out from the flagger's chest. The bottom of any luminaire shall be a minimum of 3 m (10 ft) above the pavement. Luminaire(s) shall be shielded to minimize glare to approaching traffic and trespass light to adjoining properties.

The flagger vest shall be a fluorescent orange or fluorescent orange and fluorescent yellow/green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 3 garments."

LIGHT EMITTING DIODE (LED) SIGNAL HEAD (BDE)
Effective: April 1, 2002 Revised: November 1, 2005

Add the following paragraph to the end of Article 802.03 of the Standard Specifications:

"The warranty for light emitting diode (LED) modules, including the maintained minimum luminous intensities, shall cover a minimum of 60 months from the date of delivery."

Revise Article 880.01 of the Standard Specifications to read:

"**880.01 Description.** This work shall consist of furnishing and installing a conventional signal head, optically programmed signal head or light emitting diode (LED) signal head."

Revise Article 880.02(a) of the Standard Specifications to read:

"(a) Signal Heads……..1078.01"

Revise the first sentence of the first paragraph of Article 880.03 of the Standard Specifications to read:

"The signal head shall be installed on a post, bracket, span wire or mast arm as shown on the plans."

Revise the first paragraph of Article 880.04 of the Standard Specifications to read:

"**880.04 Basis of Payment.** This work will be paid for at the contract unit price each for SIGNAL HEAD, OPTICALLY PROGRAMMED SIGNAL HEAD, or SIGNAL HEAD, LED of the type specified and of the material type when specified."

Revise Article 1078.01 of the Standard Specifications to read:

"**1078.01 Signal Head, Optically Programmed Signal Head and Light Emitting Diode (LED) Signal Head.**"

Add the following to Article 1078.01(c) of the Standard Specifications:

"(3) The LED signal section shall be according to the following:

a. General Requirements. The LED signal head shall meet the requirements of the Institute of Transportation Engineers (ITE) LED purchase specification, "Vehicle Traffic Control Signal Heads, Part 2: LED Vehicle Traffic Signal Modules", and "Vehicle Traffic Control Signal Heads, Part 3: LED Vehicle Arrow Traffic Signal Modules", or applicable successor ITE specifications, except as modified herein. The LEDs utilized in the modules shall not be Aluminum Gallium Arsenide (AIGaAs) material technology.

b. Physical and Mechanical Requirements. The power supply for the LED module shall be integrated with the unit.

c. Photometric Requirements. The candlepower values for yellow 300 mm (12 in.) circular modules shall be equal to the corresponding values for green 300 mm (12 in.) circular modules as listed in Table 1 of Section 4 of the aforementioned ITE specification based on normal use in traffic signal operation over the operating temperature range.

The illuminated portion of the arrow module shall be uniformly and completely dispersed with the LEDs.

d. Electrical Requirements. When applicable to the particular module type, the LED signal module shall be EPA Energy Star qualified. For yellow 300 mm (12 in.) circular and arrow modules, the wattage requirements shall be as follows:

Module Type	Maximum Watts (W) at 74 °C (165 °F)	Nominal Watts (W) at 25 °C (77 °F)
300 mm (12 in.) Yellow Circular	25	22
300 mm (12 in.) Yellow Arrow	12	10

The individual LEDs shall be wired such that a catastrophic loss or the failure of one LED will result in the loss of not more than five percent of the signal module light output.

e. Warranty. The LED modules shall be warrantied according to Article 802.03."

PARTIAL PAYMENTS (BDE)
Effective: September 1, 2003

Revise Article 109.07 of the Standard Specifications to read:

"**109.07 Partial Payments.** Partial payments will be made as follows:

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

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved. Furthermore, progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c).

(b) Material Allowances. At the discretion of the Department, payment may be made for materials, prior to their use in the work, when satisfactory evidence is presented by the Contractor. Satisfactory evidence includes justification for the allowance (to expedite the work, meet project schedules, regional or national material shortages, etc.), documentation of material and transportation costs, and evidence that such material is properly stored on the project or at a secure location acceptable and accessible to the Department.

Material allowances will be considered only for nonperishable materials when the cost, including transportation, exceeds $10,000 and such materials are not expected to be utilized within 60 days of the request for the allowance. For contracts valued under $500,000, the minimum $10,000 requirement may be met by combining the principal (material) product of no more than two contract items. An exception to this two item limitation may be considered for any contract regardless of value for items in which material (products) are similar except for type and/or size.

Material allowances shall not exceed the value of the contract items in which used and shall not include the cost of installation or related markups. Amounts paid by the Department for material allowances will be deducted from estimates due the Contractor as the material is used. Two-sided copies of the Contractor's cancelled checks for materials and transportation must be furnished to the Department within 60 days of payment of the allowances or the amounts will be reclaimed by the Department."

PAYMENTS TO SUBCONTRACTORS (BDE)
Effective: June 1, 2000 Revised: January 1, 2006

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

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

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

When progress payments are made to the Contractor according to Article 109.07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to

the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause.

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

PAYROLLS AND PAYROLL RECORDS (BDE)
Effective: August 10, 2005

FEDERAL AID CONTRACTS. Add the following State of Illinois requirements to the Federal requirements contained in Section V of Form FHWA-1273:

"The payroll records shall include each worker's name, address, telephone number, social security number, classification, rate of pay, number of hours worked each day, starting and ending times of work each day, total hours worked each week, itemized deductions made, and actual wages paid.

The Contractor and each subcontractor shall submit payroll records to the Engineer each week from the start to the completion of their respective work. The submittals shall be on the Department's form SBE 48, or an approved facsimile. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate box ("No Work", "Suspended", or "Complete") checked on the form."

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

"IV. COMPLIANCE WITH THE PREVAILING WAGE ACT

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

2. Payroll Records. The Contractor and each subcontractor shall make and keep, for a period of three years from the date of completion of this contract, records of the wages paid to his/her workers. The payroll records shall include each worker's name, address, telephone number, social security number, classification, rate of pay, number of hours worked each day, starting and ending times of work each day, total hours worked each week, itemized deductions made, and actual wages paid. Upon two business days' notice, these records shall be available, at all reasonable hours at a location within the State, for inspection by the Department or the Department of Labor.

3. Submission of Payroll Records. The Contractor and each subcontractor shall submit payroll records to the Engineer each week from the start to the completion of their respective work. The submittals shall be on the Department's form SBE 48, or an approved facsimile. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate box ("No Work", "Suspended", or "Complete") checked on the form.

   Each submittal shall be accompanied by a statement signed by the Contractor or subcontractor which avers that: (i) such records are true and accurate; (ii) the hourly rate paid to each worker is not less than the general prevailing rate of hourly wages required by the Act; and (iii) the Contractor or subcontractor is aware that filing a payroll record that he/she knows to be false is a Class B misdemeanor.

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

PERSONAL PROTECTIVE EQUIPMENT (BDE)
Effective: July 1, 2004

All personnel, excluding flaggers, working outside of a vehicle (car or truck) within 7.6 m (25 ft) of pavement open to traffic shall wear a fluorescent orange, fluorescent yellow/green or a combination of fluorescent orange and fluorescent yellow/.green vest meeting the requirements of the American National Standards Institute specification ANSI/ISEA 107-1999 for Conspicuity Class 2 garments. Other types of garments may be substituted for the vest as long as the garments have manufacturers tags identifying them as meeting the ANSI Class 2 requirement.

PORTABLE CHANGEABLE MESSAGE SIGNS (BDE)
Effective: November 1, 1993 Revised: April 2, 2004

Description. This work shall consist of furnishing, placing, and maintaining changeable message sign(s) at the locations(s) shown on the plans or as directed by the Engineer.

The sign(s) shall be trailer mounted. The message panel shall be at least 2.1 m (7 ft) above the pavement, present a level appearance, and be capable of displaying up to eight characters in each of three lines at a time. Character height shall be 450 mm (18 in.).

The message panel shall be of either a bulb matrix or disc matrix design controlled by an onboard computer capable of storing a minimum of 99 programmed messages for instant recall. The computer shall be capable of being programmed to accept messages created by the operator via an alpha-numeric keyboard and able to flash any six messages in sequence. The message panel shall also be capable of being controlled by a computer from a remote location via a cellular linkage. The Contractor shall supply the modem, the cellular phone, and the necessary software to run the sign from a remote computer at a location designated by the Engineer. The Contractor shall promptly program and/or reprogram the computer to provide the messages as directed by the Engineer.

The message panel shall be visible from 400 m (1/4 mile) under both day and night conditions. The letters shall be legible from 250 m (750 ft).

The sign shall include automatic dimming for nighttime operation and a power supply capable of providing 24 hours of uninterrupted service.

The Contractor shall provide all preventive maintenance efforts s(he) deems necessary to achieve uninterrupted service. If service is interrupted for any cause and not restored within 24 hours, the Engineer will cause such work to be performed as may be necessary to provide this service. The cost of such work shall be borne by the Contractor or deducted from current or future compensation due the Contractor.

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

Basis of Payment. When portable changeable message signs are shown on the Standard, this work will not be paid for separately but shall be considered as included in the cost of the Standard.

For all other portable changeable message signs, this work will be paid for at the contract unit price per calendar month for each sign as CHANGEABLE MESSAGE SIGN.

PORTLAND CEMENT (BDE)
Effective: January 1, 2005 Revised: November 1, 2005

Add the following paragraph after the last paragraph of Article 1001.01 of the Standard Specifications.

"For portland cement according to ASTM C 150, the bill of lading shall state if limestone has been added. The bill of lading shall also state that the limestone addition is not in excess of five percent by mass (weight) of the cement."

PORTLAND CEMENT CONCRETE (BDE)
Effective: November 1, 2002

Add the following paragraph after the fourth paragraph of Article 1103.01(b) of the Standard Specifications:

"The truck mixer shall be approved before use according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

Add the following paragraph after the first paragraph of Article 1103.01(c) of the Standard Specifications:

"The truck agitator shall be approved before use according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

Add the following paragraph after the first paragraph of Article 1103.01(d) of the Standard Specifications:

"The nonagitator truck shall be approved before use according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

Revise the first sentence of the first paragraph of Article 1103.02 of the Standard Specifications to read:

"The plant shall be approved before production begins according to the Bureau of Materials and Physical Research's Policy Memorandum, "Approval of Concrete Plants and Delivery Trucks"."

PUBLIC CONVENIENCE AND SAFETY (BDE)
Effective: January 1, 2000

Add the following paragraph after the fourth paragraph of Article 107.09 of the Standard Specifications.

"On weekends, excluding holidays, roadways with Average Daily Traffic of 25,000 or greater, all lanes shall be open to traffic from 3:00 P.M. Friday to midnight Sunday except where structure construction or major rehabilitation makes it impractical."

RAILROAD FLAGGERS (BDE)
Effective: April 1, 2006

Revise the fourth and fifth paragraphs of Article 107.12 of the Standard Specifications to read:

"At the preconstruction conference, the Contractor shall furnish the Railroad with the approximate dates flagging services are needed. The approximate date of initiation of flagging services shall be at least 30 calendar days after the conference. The Contractor shall also notify the Railroad at least 48 hours in advance of the actual initiation and termination of flagging services.

The Contractor shall pay the costs of Railroad flaggers required solely for transporting material or equipment across the track. These costs 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."

SEEDING AND SODDING (BDE)
Effective: July 1, 2004 Revised: August 1, 2006

Revise Class 1A and 2A seeding mixtures shown in Table 1 of Article 250.07 of the Standard Specifications to read:

"Table 1 - SEEDING MIXTURES

Class – Type		Seeds	kg/hectare (lb/acre)
1A	Salt Tolerant Lawn Mixture 7/	Bluegrass	70 (60)
		Perennial Ryegrass	20 (20)
		Audubon Red Fescue	20 (20)
		Rescue 911 Hard Fescue	20 (20)
		Fults Salt Grass*	70 (60)
2A	Salt Tolerant Roadside Mixture 7/	Alta Fescue or Ky 31	70 (60)
		Perennial Ryegrass	20 (20)
		Audubon Red Fescue	20 (30)
		Rescue 911 Hard Fescue	20 (30)
		Fults Salt Grass 1/	70 (60)"

Revise Note 7 of Article 250.07 of the Standard Specifications to read:

"Note 7. In Districts 1 through 6, the planting times shall be April 1 to June 15 and August 1 to November 1. In Districts 7 through 9, the planting times shall be March 1 to June 1 and August 1 to November 15. Seeding may be performed outside these dates provided the Contractor guarantees a minimum of 75 percent uniform growth over the entire seeded area(s) after one growing season. The guarantee shall be submitted to the Engineer in writing prior to performing the work. After one growing season, areas not sustaining 75 percent uniform growth shall be interseeded or reseeded, as determined by the Engineer, at the Contractor's expense."

Add the following sentence to Article 252.04 of the Standard Specifications:

"Sod shall not be placed during the months of July and August."

Revise the first paragraph of Article 252.08 of the Standard Specifications to read:

"**252.08 Sod Watering.** Within two hours after the sod has been placed, water shall be applied at a rate of 25 L/sq m (5 gal/sq yd). Additional water shall be applied every other day at a rate of 15 L/sq m (3 gal/sq yd) for a total of 15 additional waterings. During periods exceeding

26 ºC (80 ºF) or subnormal rainfall, the schedule of additional waterings may be altered with the approval of the Engineer."

Revise Article 252.09 of the Standard Specifications to read:

"**252.09 Supplemental Watering.** During periods exceeding 26 ºC (80 ºF) or subnormal rainfall, supplemental watering may be required after the initial and additional waterings. Supplemental watering shall be performed when directed by the Engineer. Water shall be applied at the rate specified by the Engineer within 24 hours of notice."

Revise the first and third paragraphs of Article 252.12 of the Standard Specifications to read:

"**252.12 Method of Measurement**. Sodding will be measured for payment in place and the area computed in square meters (square yards). To be acceptable for final payment, the sod shall be growing in place for a minimum of 30 days in a live, healthy condition. When directed by the Engineer, any defective or unacceptable sod shall be removed, replaced and watered by the Contractor at his/her own expense."

"Supplemental watering will be measured for payment in units of 1000 L (1000 gal) of water applied on the sodded areas. Waterings performed in addition to those required by Article 252.08 or after the 30 day establishment period will be considered as supplemental watering."

Replace the first paragraph of Article 252.13 of the Standard Specifications with the following:

"**252.13 Basis of Payment.** Sodding will be paid for at the contract unit price per square meter (square yard) for SODDING or SODDING, SALT TOLERANT according to the following schedule.

(a) Initial Payment. Upon placement of sod, 25 percent of the pay item will be paid.

(b) Final Payment. Upon acceptance of sod, the remaining 75 percent of the pay item will be paid."

Revise Article 1081.03(b) of the Standard Specifications to read:

"(b) Salt Tolerant Sod.

Variety	Percent by Weight
Buffalo Grass Buchloe Dactyloides	30%
Inferno Tall Fescue	20%
Audubon Red Fescue	15%
Rescue 911 Hard Fescue	15%
Rugby Kentucky Bluegrass	5%
Fults Pucinnellia Distans	15%"

Revise Table II of Article 1081.04(c)(6) of the Standard Specifications to read:

TABLE II

Variety of Seeds	Hard Seed Percent Maximum	Purity Percent Minimum	Pure, Live Seed Percent Minimum	Weed Percent Maximum	Secondary Noxious Weeds No. per kg (oz) Max. Permitted*	Remarks
Alfalfa	20	92	89	0.50	211 (6)	1/
Brome Grass	-	90	75	0.50	175 (5)	-
Clover, Alsike	15	92	87	0.30	211 (6)	2/
Clover, Crimson	15	92	83	0.50	211 (6)	-
Clover, Ladino	15	92	87	0.30	211 (6)	-
Clover, Red	20	92	87	0.30	211 (6)	-
Clover, White Dutch	30	92	87	0.30	211 (6)	3/
Audubon Red Fescue	0	97	82	0.10	105 (3)	-
Fescue, Alta or Ky. 31	-	97	82	1.00	105 (3)	-
Fescue, Creeping Red	-	97	82	1.00	105 (3)	-
Fults Salt Grass	0	98	85	0.10	70 (2)	-
Kentucky Bluegrass	-	97	80	0.30	247 (7)	5/
Lespedeza, Korean	20	92	84	0.50	211 (6)	3/
Oats	-	92	88	0.50	70 (2)	4/
Orchard Grass	-	90	78	1.50	175 (5)	4/
Redtop	-	90	78	1.80	175 (5)	4/
Ryegrass, Perennial, Annual	-	97	85	0.30	175 (5)	4/
Rye, Grain, Winter	-	92	83	0.50	70 (2)	4/
Rescue 911 Hard Fescue	0	97	82	0.10	105 (3)	-
Timothy	-	92	84	0.50	175 (5)	4/
Vetch, Crown	30	92	67	1.00	211 (6)	3/ & 6/
Vetch, Spring	30	92	88	1.00	70 (2)	4/
Vetch, Winter	15	92	83	1.00	105 (3)	4/
Wheat, hard Red Winter	-	92	89	0.50	70 (2)	4/

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)
Effective: April 2, 2005

To account for the preparatory work and operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting in accordance with Article 108.01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be equal to 3 percent of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor's work.

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

TRAFFIC CONTROL DEFICIENCY DEDUCTION (BDE)
Effective: April 1, 1992 Revised: January 1, 2005

To ensure a prompt response to incidents involving the integrity of work zone traffic control, the Contractor shall provide a telephone number where a responsible individual can be contacted 24 hours-a-day.

When the Engineer is notified, or determines a traffic control deficiency exists, he/she will notify and direct the Contractor to correct the deficiency within a specified time. The specified time, which begins upon notification to the Contractor, will be from 1/2 hour to 12 hours based upon the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge.

A deficiency may be any lack of repair, maintenance, or non-compliance with the traffic control plan. A deficiency may also be applied to situations where corrective action is not an option such as the use of non-certified flaggers for short term operations; working with lane closures beyond the time allowed in the contract; or failure to perform required contract obligations such as traffic control surveillance.

If the Contractor fails to correct a deficiency within the specified time, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency exists. The calendar day(s) will begin with notification to the Contractor and end with the Engineer's acceptance of the correction. The daily monetary deduction will be either $1,000 or 0.05 percent of the awarded contract value, whichever is greater. For those deficiencies where corrective action was not an option this monetary deduction will be immediate.

In addition, if the Contractor fails to respond, the Engineer may correct the deficiency and the cost thereof will be deducted from monies due or which may become due the Contractor. This corrective action will in no way relieve the Contractor of his/her contractual requirements or responsibilities.

TRAFFIC SIGNAL GROUNDING (BDE)
Effective: April 1, 2006

Add the following paragraphs to the end of Article 807.01 of the Standard Specifications:

"The grounding system shall consist of a continuous, green, insulated conductor Type XLP, No. 6 AWG, stranded copper installed in raceways and bonded to each metal enclosure (handhole, post, mast arm pole, signal cabinet, etc.). All clamps shall be bronze or copper, UL approved.

A grounding cable with connectors shall be installed between each handhole cover and frame. The grounding cable shall be looped over cable hooks installed in the handholes and 1.5 m (5 ft) of slack shall be provided between the frame and cover.

All equipment grounding conductors shall terminate at the ground bus in the controller cabinet. The neutral conductor and the ground conductor shall be connected in the service

installation. At no other point in the traffic signals system shall the neutral and ground conductors be connected."

Revise Article 873.02 of the Standard Specifications to read:

"**873.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Electric Cable – Signal, Lead-in, Communication, Service, and Grounding	1076.04
(b) Conduit	1088.01"

Revise the last sentence of Article 873.05 of the Standard Specifications to read:

"The type specified will indicate the method of installation and whether the electric cable is Service, Signal, Lead-in, Communication, or Grounding."

Revise the heading of Article 1076.04 of the Standard Specifications to read:

"**1076.04 Electric Cable – Signal, Lead-in, Communication, Service, and Grounding.**"

Add the following paragraph to the end of Article 1076.04 of the Standard Specifications:

"(e) Grounding Conductor. The cross linked polyethylene (XLP) insulated conductor shall be according to Articles 1066.02 and 1066.03. The stranded copper conductor shall be No. 6 AWG and the insulation color shall be green."

TRANSIENT VOLTAGE SURGE SUPPRESSION (BDE)
Effective: August 1, 2003

Revise the first paragraph of Article 1074.03(a)(4) of the Standard Specifications to read:

"(4) Transient Voltage Surge Suppression. The cabinet shall be provided with transient voltage surge suppression. Transient surge suppression unit leads shall be kept as short as possible and ground shall be made directly to the cabinet wall or ground plate as near as possible to the object being grounded. All transient surge suppression units shall be tested and certified as meeting this specification by an independent testing laboratory. One copy of each of the full testing report shall be submitted to the Engineer."

Revise Article 1074.03(a)(4)a. of the Standard Specifications to read:

"a. Surge Suppressor. The suppressor protecting the solid state controller, conflict monitor, and detection equipment shall consist of two stages: stage one which shall include a controller cabinet AC power protection assembly and stage two which shall include AC circuit protection.

The design of the stage one suppressor shall be modular and it shall be installed in such a way that it may be removed and replaced with the intersection under power

and in flashing operation. It shall have a permanently mounted and wired base and a removable circuit package. The stage one suppressor shall have two LED failure indicators for power 'on' and suppression 'failure' and shall meet the following properties:

Stage One Suppressor	
Properties	Criteria
"Plug-in" suppression module	12 pin connector assembly
Clamp voltage	250 V at 20,000 A typical
Response time	Less than 5 nanoseconds
Maximum continuous service current	15 A at 120 VAC 60 Hz
High frequency noise attenuation	At least 50 dB at 100,000 Hz
Operating temperature	-40 °C (-40 °F) to 85 °C (185 °F)

If the controller assembly includes a system telemetry module or remote intersection monitor, the status of the stage one suppressor shall be continuously and remotely monitored by an appropriate alarm circuit.

The stage two, high speed, solid state, transient suppressor shall protect the system from transient over voltage without affecting power at the load. It shall suppress transients of either polarity and from either direction (source or load). The suppressor shall have a visual "on" indicator lamp when the unit is operating normally. It shall also have a UL plastic enclosure, a four position terminal strip for power connection, and it shall utilize silicon avalanche diode technology. The stage two suppressor shall meet the following properties:

Stage Two Suppressor	
Properties	Criteria
Nominal service voltage	120 V at 50/60 Hz
Maximum voltage protection level	±330 V
Minimum voltage protection level	±220 V ±5%
Minimum surge current rating	700 A
Stand by power	Less than 0.5 Watts
Hot to neutral leakage current at 120 V RMS	Less than 5μA
Maximum response time	5 nanoseconds
Operating and Storage temperature	-20 °C (-4 °F) to 50 °C (122 °F)"

WEIGHT CONTROL DEFICIENCY DEDUCTION
Effective: April 1, 2001 Revised: August 1, 2002

The Contractor shall provide accurate weights of materials delivered to the contract for incorporation into the work (whether temporary or permanent) and for which the basis of payment is by weight. These weights shall be documented on delivery tickets which shall identify the source of the material, type of material, the date and time the material was loaded, the contract number, the net weight, the tare weight when applicable and the identification of the

transporting vehicle. For aggregates, the Contractor shall have the driver of the vehicle furnish or establish an acceptable alternative to provide the contract number and a copy of the material order to the source for each load. The source is defined as that facility that produces the final material product that is to be incorporated into the contract pay items.

The Department will conduct random, independent vehicle weight checks for material sources according to the procedures outlined in the Documentation Section Policy Statement of the Department's Construction Manual and hereby incorporated by reference. The results of the independent weight checks shall be applicable to all contracts containing this Special Provision. Should the vehicle weight check for a source result in the net weight of material on the vehicle exceeding the net weight of material shown on the delivery ticket by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. No adjustment in pay quantity will be made. Should the vehicle weight check for a source result in the net weight of material shown on the delivery ticket exceeding the net weight of material on the vehicle by 0.50% (0.70% for aggregates) or more, the Engineer will document the independent vehicle weight check and immediately furnish a copy of the results to the Contractor. The Engineer will adjust the net weight shown on the delivery ticket to the checked delivered net weight as determined by the independent vehicle weight check.

The Engineer will also adjust the method of measurement for all contracts for subsequent deliveries of all materials from the source based on the independent weight check. The net weight of all materials delivered to all contracts containing this Special Provision from this source, for which the basis of payment is by weight, will be adjusted by applying a correction factor "A" as determined by the following formula:

$$A = 1.0 - \left(\frac{B - C}{B}\right); \text{ Where } A \le 1.0; \ \left(\frac{B - C}{C}\right) > 0.50\% \text{ (0.70\% for aggregates)}$$

Where A = Adjustment factor
B = Net weight shown on delivery ticket
C = Net weight determined from independent weight check

The adjustment factor will be applied as follows:

Adjusted Net Weight = A x Delivery Ticket Net Weight

The adjustment factor will be imposed until the cause of the deficient weight is identified and corrected by the Contractor to the satisfaction of the Engineer. If the cause of the deficient weight is not identified and corrected within seven (7) calendar days, the source shall cease delivery of all materials to all contracts containing this Special Provision for which the basis of payment is by weight.

Should the Contractor elect to challenge the results of the independent weight check, the Engineer will continue to document the weight of material for which the adjustment factor would be applied. However, provided the Contractor furnishes the Engineer with written documentation that the source scale has been calibrated within seven (7) calendar days after the date of the independent weight check, adjustments in the weight of material paid for will not

be applied unless the scale calibration demonstrates that the source scale was not within the specified Department of Agriculture tolerance.

At the Contractor's option, the vehicle may be weighed on a second independent Department of Agriculture certified scale to verify the accuracy of the scale used for the independent weight check.

WORK ZONE PUBLIC INFORMATION SIGNS (BDE)
Effective: September 1, 2002 Revised: January 1, 2005

Description. This work shall consist of furnishing, erecting, maintaining, and removing work zone public information signs.

Camera-ready artwork for the signs will be provided to sign manufacturing companies upon request by contacting the Central Bureau of Operations at 217-782-2076. The sign number is W21-I116-6048.

Freeways/Expressways. These signs are required on freeways and expressways. The signs shall be erected as shown on Highway Standard 701400 and according to Article 702.05(a) of the Standard Specifications.

All Other Routes. These signs shall be used on other routes when specified on the plans. They shall be erected in pairs midway between the first and second warning signs.

Basis of Payment. This work will not be paid for separately but shall be considered as included in the cost of the Standard.

WORK ZONE SPEED LIMIT SIGNS (BDE)
Effective: April 2, 2004 Revised: January 1, 2006

Delete Article 702.05(c).

Revise Article 702.05(d) to read:

"(d) Work Zone Speed Limit Signs. Work zone speed limit sign assemblies shall be provided and located as shown on the plans. Two additional assemblies shall be placed 150 m (500 ft) beyond the last entrance ramp for each interchange or sideroad. The individual signs that make up an assembly may be combined on a single panel. The sheeting for the signs shall be reflective and conform to the requirements of Article 1084.02.

All permanent "SPEED LIMIT" signs located within the work zone shall be removed or covered. This work shall be coordinated with the lane closure(s) by promptly establishing a reduced posted speed zone when the lane closure(s) are put into effect and promptly reinstating the posted speed zone when the lane closure(s) are removed.

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

The work zone speed limit signs shown within the lane closure(s) shall only be used when workers are present in the closed lane adjacent to traffic; at all other times, the signs shall be promptly removed or covered. The sign assemblies shown within the lane closure(s) will not be required when the worker(s) are located behind a concrete barrier wall.

WORK ZONE TRAFFIC CONTROL DEVICES (BDE)
Effective: January 1, 2003 Revised: November 1, 2004

Add the following to Article 702.01 of the Standard Specifications:

"All devices and combinations of devices shall meet the requirements of the National Cooperative Highway Research Program (NCHRP) Report 350 for their respective categories. The categories are as follows:

Category 1 includes small, lightweight, channelizing and delineating devices that have been in common use for many years and are known to be crashworthy by crash testing of similar devices or years of demonstrable safe performance. These include cones, tubular markers, flexible delineators and plastic drums with no attachments. Category 1 devices shall be crash tested and accepted or may be self-certified by the manufacturer.

Category 2 includes devices that are not expected to produce significant vehicular velocity change but may otherwise be hazardous. These include drums and vertical panels with lights, barricades and portable sign supports. Category 2 devices shall be crash tested and accepted for Test Level 3.

Category 3 includes devices that are expected to cause significant velocity changes or other potentially harmful reactions to impacting vehicles. These include crash cushions, truck mounted attenuators and other devices not meeting the definitions of Category 1 or 2. Category 3 devices shall be crash tested and accepted for either Test Level 3 or the test level specified.

Category 4 includes portable or trailer-mounted devices such as arrow boards, changeable message signs, temporary traffic signals and area lighting supports. Currently, there is no implementation date set for this category and it is exempt from the NCHRP 350 compliance requirement.

The Contractor shall provide a manufacturer's self-certification letter for each Category 1 device and an FHWA acceptance letter for each Category 2 and Category 3 device used on the contract. The letters shall state the device meets the NCHRP 350 requirements for its respective category and test level, and shall include a detail drawing of the device."

Delete the third, fourth and fifth paragraphs of Article 702.03(b) of the Standard Specifications.

Delete the third sentence of the first paragraph of Article 702.03(c) of the Standard Specifications.

Revise the first sentence of the first paragraph of Article 702.03(e) of the Standard Specifications to read:

"Drums shall be nonmetallic and have alternating reflectorized Type AA or Type AP fluorescent orange and reflectorized white horizontal, circumferential stripes."

Add the following to Article 702.03 of the Standard Specifications:

"(h) Vertical Barricades. Vertical barricades may be used in lieu of cones, drums or Type II barricades to channelize traffic."

Delete the fourth paragraph of Article 702.05(a) of the Standard Specifications.

Revise the sixth paragraph of Article 702.05(a) of the Standard Specifications to read:

"When the work operations exceed four days, all signs shall be post mounted unless the signs are located on the pavement or define a moving or intermittent operation. When approved by the Engineer, a temporary sign stand may be used to support a sign at 1.2 m (5 ft) minimum where posts are impractical. Longitudinal dimensions shown on the plans for the placement of signs may be increased up to 30 m (100 ft) to avoid obstacles, hazards or to improve sight distance, when approved by the Engineer. "ROAD CONSTRUCTION AHEAD" signs will also be required on side roads located within the limits of the mainline "ROAD CONSTRUCTION AHEAD" signs."

Delete all references to "Type 1A barricades" and "wing barricades" throughout Section 702 of the Standard Specifications.

RAILROAD PROTECTIVE LIABILITY INSURANCE (BDE)
Effective: December 1, 1986 Revised: January 1, 2006

Description. Railroad Protective Liability and Property Damage Liability Insurance shall be carried according to Article 107.11 of the Standard Specifications. A separate policy is required for each railroad unless otherwise noted.

NAMED INSURED & ADDRESS	NUMBER & SPEED OF PASSENGER TRAINS	NUMBER & SPEED OF FREIGHT TRAINS
Union Pacific Railroad 100 North Broadway St. Louis, MO. 63103	None	10-15 Trains per day

DOT/AAR No.: 803 384 F RR Mile Post: 281.0
RR Division: St. Louis RR Sub-Division: Springfield

For Freight/Passenger Information Contact: Dave McKernan Phone: (314)331-0682
For Insurance Information Contact: Dave McKernan Phone: (314)331-0682

Kansas City Southern Railway 427 W. 12th St. Kansas City, MO. 64105	None	5 Trains p/d

DOT/AAR No.: N/A
RR Division: Midwest
RR Mile Post: 281.0
RR Sub-Division: Seven

For Freight/Passenger Information Contact: Taulton Dancy Phone: (618)624-4556
For Insurance Information Contact: Mike Nelson Phone: (618)983-1225

Terminal Railroad of St. Louis Louis Union Station, Suite 200 St. Louis, MO. 63103	6 passenger p/d	30-40 Trains p/d

DOT/AAR No.: N/A
RR Division: St. Louis
RR Mile Post: 281.0
RR Sub-Division: Seven

For Freight/Passenger Information Contact: Rick McQueen Phone: (314)539-4724
For Insurance Information Contact: Rick McQueen Phone: (314)539-4724

Approval of Insurance. The original and one certified copy of each required policy shall be submitted to the following address for approval:

Illinois Department of Transportation
Bureau of Design and Environment
2300 South Dirksen Parkway, Room 326
Springfield, Illinois 62764

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 Engineer evidence that the required insurance has been approved by the railroad(s). The Contractor shall also provide the Engineer with the expiration date of each required policy.

Basis of Payment. Providing Railroad Protective Liability and Property Damage Liability Insurance will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

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ATTACHMENTS

A. Employment Preference for Appalachian Contracts (included in Appalachian contracts only)

I. GENERAL

1. These contract provisions shall apply to all word performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

Section I, paragraph 2;
Section IV, paragraphs 1, 2, 3, 4 and 7;
Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. Selection of Labor: During the performance of this contract, the contractor shall not:

a. Discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. Employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60 (and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure 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, preapprenticeship, and/or on-the-job-training."

2. EEO Officer: The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for an must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: 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 EEO 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:

a. 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.

b. 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 days following their reporting for duty with the contractor.

c. 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 group employees.

d. 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.

e. 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.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employees referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish which such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. 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 termination, shall 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 his 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 his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women 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. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

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 group and women employees and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women 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:

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

b. 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.

c. 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 SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women 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 quailifiable minority group persons and women. (The DOL 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 minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

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 obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his 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 years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

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

(1) The number of minority and non-minority group members and women 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 women;

(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 DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term “segregated facilities” means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter “the wage determination”) which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the

contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

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

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

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

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or

disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

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

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

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

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

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not

be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which cases such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:
Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV. 2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. Apprentices and Trainees (Programs of the U.S. DOT):

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. Withholding:

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

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall; upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period).

The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V.

This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all suncontractors.

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

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

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

(3) that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U/S. C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for

inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all federal-aid contracts on the national highway system, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on /Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in he contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted form the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract.

Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S. C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification,

distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more than $10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more).

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible,""lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled

"Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded from Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

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

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

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Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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2. Instructions for Certification - Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tie participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

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

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

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Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion-Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

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

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONSTRUCTION CONTRACTS

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision

NOTICE

The most current **General Wage Determination Decisions** (wage rates) are available on the IDOT web site. They are located on the Letting and Bidding page at http://www.dot.il.gov/desenv/delett.html.

In addition, ten (10) days prior to the letting, the applicable Federal wage rates will be e-mailed to subscribers. It is recommended that all contractors subscribe to the Federal Wage Rates List or the Contractor's Packet through IDOT's subscription service.

PLEASE NOTE: if you have already subscribed to the Contractor's Packet you will automatically receive the Federal Wage Rates.

The instructions for subscribing are at http://www.dot.il.gov/desenv/subsc.html.

If you have any questions concerning the wage rates, please contact IDOT's Chief Contract Official at 217-782-7806.