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

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Proposal Submitted By
Name
Address
City

Letting September 23, 2005

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

Springfield, Illinois 62764

Contract No. 62947
COOK County
Section 2005-020I
Route FAI 94/90 (NB)
Project IM-943(399)55
District 1 Construction Funds

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 _____

   _____

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

   Contract No. 62947
   COOK County
   Section 2005-020I
   Project IM-943(399)55
   Route FAI 94/90 (NB)
   District 1 Construction Funds

Procurement of dynamic message signs and uniterruptible power supply upgrade for I-94/90 (Northbound) - Dan Ryan Expressway from 31st Street to the I-57 interchange in Chicago.

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 - 62947

State Job # - C-91-192-05
PPS NBR - 1-74823-0519
County Name - COOK- -
Code - 31 - -
District - 1 - -
Section Number - 2005-020I

Project Number
IM-094-3/399/055

Route
FAI 94/90
(NB)

Item Number	Pay Item Description	Unit of Measure	Quantity	x	Unit Price	=	Total Price
X0324831	UNINTER POWER SUP UPG	L SUM	1.000				
X0325097	CAB 334 DMS MATL ONLY	EACH	2.000				
X0325098	CAB 334 UPS MATL ONLY	EACH	13.000				
X0325099	CAB 334 EQ DMS M ONLY	EACH	2.000				
X0325100	CAB 334 EQ UPS M ONLY	EACH	13.000				
X0325101	LED DMS F MTRX M ONLY	EACH	13.000				

CONTRACT NUMBER **62947**

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.

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Illinois Department of Transportation

Contract No. 62947
COOK County
Section 2005-020I
Project IM-943(399)55
Route FAI 94/90 (NB)
District 1 Construction Funds

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

RETURN WITH BID

Contract No. 62947
COOK County
Section 2005-020I
Project IM-943(399)55
Route FAI 94/90 (NB)
District 1 Construction Funds

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. 62947
COOK County
Section 2005-020I
Project IM-943(399)55
Route FAI 94/90 (NB)
District 1 Construction Funds

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: _____ (Signature & Title)	By: _____ (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. 62947
COOK County
Section 2005-020I
Project IM-943(399)55
Route FAI 94/90 (NB)
District 1 Construction Funds

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 23, 2005. 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. 62947
   COOK County
   Section 2005-020I
   Project IM-943(399)55
   Route FAI 94/90 (NB)
   District 1 Construction Funds

Procurement of dynamic message signs and uniterruptible power supply upgrade for I-94/90 (Northbound) - Dan Ryan Expressway from 31st Street to the I-57 interchange in Chicago.

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)

SUPPLEMENTAL SPECIFICATIONS

RECURRING SPECIAL PROVISIONS

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

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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, 2003, 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 94/90, Project IM-094-3(399)055, Section 2005-020I in Cook County and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

DESCRIPTION OF PROJECT

The project is for furnishing and delivering Dynamic Message Signs (DMS), DMS Uninterruptible Power Supply (UPS) Systems, and DMS controller cabinets for installation by others and the furnishing and installation of a new UPS system.

LOCATION OF PROJECT

The DMS and associated equipment will be installed by others along Interstate 90/94 and the Bishop Ford Expressway. The UPS system will be installed by this Contract at the IDOT District 1 Headquarters in Schaumburg, IL.

DATE OF COMPLETION

The Contractor shall schedule his operations so as to furnish and deliver as applicable all the materials in accordance with the following schedules:

(a) Dynamic Message Signs

DYNAMIC MESSAGE SIGN (DMS) DELIVERY SCHEDULE		
SIGN	**SIGN LOCATION**	**DELIVERY DATE**
DMS-30	SB Dan Ryan near 83rd St.	April 1, 2006
DMS-02	NB Dan Ryan near 83rd St.	April 1, 2006
DMS-03L	NB Dan Ryan near 57th St.	August 1, 2007
DMS-03E	NB Dan Ryan near 57th St.	September 1, 2006
DMS-31L	SB Dan Ryan near Garfield Blvd.	August 1, 2007
DMS-31E	SB Dan Ryan near Garfield Blvd.	July 1, 2006
DMS-32L	SB Dan Ryan near Pershing Road	August 1, 2007
DMS-32E	SB Dan Ryan near Pershing Road	July 1, 2006
DMS-04L	NB Dan Ryan near 37th St.	August 1, 2007
DMS-04E	NB Dan Ryan near 37th St.	September 1, 2006
DMS-08	NB Dan Ryan near Chicago River	April 1, 2006
DMS-A	SB Bishop Ford near cabinet J19 and Light Standard JB2	March 15, 2006
DMS-B	NB Bishop Ford near 145th St.	March 15, 2006

The schedule is only an estimated delivery date. All signs shall be delivered to the sign installation Contractor at a location within IDOT District 1. The location will be the job site location shown in the Table or as directed by the sign installation Contractor. Extensions past the delivery date as defined by the sign installation Contractor's request for the sign will not be allowed. The sign installation Contractor is required to furnish an updated delivery schedule to the Contract 62947 Contractor at the Pre-Construction Meeting for Contract 62947. The sign installation Contractor must confirm the Delivery Date 180 days prior to the scheduled delivery and must take delivery of the DMS on the scheduled date.

The sign installation Contractor will be the Contract No. 62583 Contractor for all signs except DMS-B. The sign installation Contractor for sign DMS-B will be a Contractor for one of the I-80 Contracts.

Delivery of the UPS and DMS controller cabinets shall be the same as the delivery dates for their associated DMS signs. All DMS signs shall be provided with a UPS cabinet. Signs DMS-A and DMS-B shall also be supplied with a DMS controller cabinet.
See Section, STORAGE OF DYNAMIC MESSAGE SIGN, for storage requirements and payment.

(b) UPS Upgrades

The UPS upgrade at IDOT District 1 Headquarters is to begin immediately following the pre-construction meeting and should be completed no later than 6 months after the pre-construction meeting.

SPECIAL INSTRUCTIONS TO BIDDERS

Special Supplemental Bidding Documents. In order to be an acceptable responsible bidder for this contract, a prospective bidder shall complete and submit the various documents identified for inclusion with the bid. These include:

Proposal Form (BD 353A (Rev. 11/2001), complete with
The Schedule of Prices and total bid amount
State Required Ethical Standards Governing Contract Procurement:
Assurances, Certifications and Disclosures
Form A: Financial Information & Potential Conflicts of Interest Disclosure
Form B: Other Contracts & Procurement Related Information Disclosure
Construction Employee Utilization Projection (BC 1256 (Rev. 3/98)
Additional Federal Requirements (Certification, Equal Employment Opportunity)
Proposal Signature Sheet
Proposal Bid Bond (BD 356 (Rev. 2000)
Bidder's Qualification Affidavit
Proposed Equipment (Material) Submittal, complete with Form

These documents shall be completed and included together in the same sealed envelope as a complete bid proposal. It is the prospective bidder's obligation to provide complete and accurate information. Incomplete information or failure to comply with specified requirements may be cause for rejection of the bid.

Bidder's Qualification Affidavit. Certain qualifications have been set to establish that a bidder is qualified to provide the specified materials (equipment) and to do so in a timely manner consistent with the specified delivery schedule. Bidders must adhere to the requirements set out in the special provisions and the affidavit, complete the required information, and certify the accuracy of the information.

Proposed Materials (Equipment) Submittal. Bid proposals shall be based on materials that are explicitly identified in the proposal. A bidder will not be allowed to change from the submitted materials proposal.

Bidders shall include a submittal of the proposed materials together with the bid proposal, and this submittal shall completely describe the material and demonstrate compliance with specified requirements. Bidders shall use the standard Submittal Record & Transmittal (D1-2147 (Rev. 8/93) to itemize and transmit submittal information included with the bid. The submittal shall include all elements as itemized elsewhere herein and any additional information that the bidder deems important to describe the proposed items.

Although deviations from specified requirements are not invited, and the Department has no obligation to accept any deviations, the Department may waive technicalities and may elect to accept minor deviations from specified requirements. Bidders shall note that any deviations from the requirements of the contract document must be clearly identified as deviations in the materials submittal and failure to do so may negate any implied approval of the deviations as part of an approved submittal. Notice of award shall not automatically imply acceptance or approval of the submitted materials. The Engineer may request supplemental information to clarify the bidder's intent or details of construction either before or after award. The Department will issue Approval or Approval As Noted to the successful bidder using the standard form, with any comments noted accordingly. The successful bidder may review any Department comments prior to executing the contract with the Department.

Quantities and Delivery. The successful bidder shall coordinate item quantities and delivery schedules with the Department prior to beginning manufacture and shall continue coordination through the delivery of the final shipment.

Working Sample Demonstration (Dynamic Message Sign). The large scope of this procurement contract, and the importance of timely delivery for installation, makes it imperative that the DMS manufacturer be regularly engaged in the manufacture of the specified equipment and capable of immediately demonstrating a sample DMS that is in clear compliance with the key portions of the specifications. Delay in this regard will result in liquidated damages, as specified, and failure to present the sample in a timely manner may result in termination of the contract, at the discretion of the Engineer.

The DMS manufacturer shall provide a satisfactory, approvable demonstration of a working sample DMS within 14 calendar days after contract execution. The sample shall be a complete mock-up of a working DMS based on the proposed equipment to be furnished under this contract and identified in the submittal material. The sample demonstration may utilize a portable sample at the IDOT Traffic Systems Center, or it may be at the manufacturer's production facility if located within District 1. A demonstration of an identical installed unit for some other contract will be acceptable.

The sample demonstration will be for purposes of review and approval by the engineer. The Engineer will issue review comments based on examination of the unit and its operation at the time of the demonstration, and the Engineer may require a subsequent revised sample demonstration if, in the Engineer's judgment, the comments warrant re-work of the sample unit.

Delay in presenting the specified demonstration or delay in attaining "Approved" or "Approved as Noted" status will result in the assessment of liquidated damages in the amount of $3,000 per calendar day until a satisfactory sample and demonstration are attained.

For a demonstration to be held at the IDOT Traffic Systems Center, the manufacturer shall coordinate the exact date, time, demonstration location and power requirements with the Traffic Systems Center Engineer.

The sample unit shall be in substantial compliance with the contract requirements. The Engineer may elect to waive minor deviations for purposes of the demonstration, or may waive minor deviations completely if alternative provisions are judged superior to specified requirements, but deviations from key specified requirements will not be accepted.

BIDDER'S QUALIFICATIONS AFFIDAVIT – DYNAMIC MESSAGE SIGN

Established Manufacturer. A qualified manufacturer of the DMS shall be a vendor with demonstrable experience in the manufacture of DMS used on public highways. A qualified manufacturer shall have an established, ongoing manufacturing enterprise, with employees and manufacturing machinery under the exclusive and direct control of the manufacturer, and with continuous manufacturing operation for at least 3 years prior to the date this contract is bid.

The manufacturer must have a corporate size and manufacturing capability to undertake a project of the size being bid under this contract.

Dynamic Message Sign Manufacturer:	
Address, City, State:	
Contact:	
Phone Number:	

Number of full time employees of the DMS manufacturer engaged in manufacturer of DMS in 2004: _____. Present number of full time employees: _____.

Number of complete dynamic message signs delivered in 2002:	
Number of complete dynamic message signs delivered in 2003:	
Number of complete dynamic message signs delivered in 2004:	

_____
Bidding Company

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

_____ _____
Signature of Authorized Representative Date

LED DYNAMIC MESSAGE SIGN FULL MATRIX CONFIGURATION, MATERIAL ONLY
Effective Date: 5/19/2005

Description. This work shall consist of furnishing, delivering, and assisting in setup of walk-in LED dynamic message signs (DMS) with 18-inch characters. The display shall be a full matrix configuration of **27 pixels high by 105 pixels wide**. All display elements and modules shall be solid state. No mechanical or electromechanical elements or shutters shall be used.

Installation Coordination. All signs will be installed on sign trusses which are either existing or furnished by others under other Contracts. The Contractor for this Contract will be responsible for delivering the sign to the sign installation Contractor. The sign installation Contractor will coordinate the installation of the sign on the sign truss with the Contractor that is furnishing and installing the sign truss.

The sign installation Contractor will be responsible for furnishing and installing all conduit and wire required to be mounted to the sign truss.

Mounting of signs to new trusses will be done by the Contractor which supplies the truss according to the following list.

1. DMS-30, Contract 62695
2. DMS-02, Contract 62694
3. DMS-03L, Contract 62301
4. DMS-03E, Contract 62300
5. DMS-31L, Contract 62303
6. DMS-31E, Contract 62302
7. DMS-32L, Contract 62303
8. DMS-32E, Contract 62302
9. DMS-04L, Contract 62301
10. DMS-04E, Contract 62300
11. DMS-08, Contract 62583 (Existing Truss)
12. DMS-A, Contract 62583
13. DMS-B, Contractor to be assigned in the future

Under Contract 62947 the DMS supplier is required to furnish with each DMS all mounting brackets, nuts, bolts, washers and ancillary materials required to secure the DMS sign to WF6x5.40 brackets furnished as part of the sign structure. Copies of IDOT Standard Drawings detailing requirements of the supports to be furnished by the sign truss supplier are attached to these specifications for information. DMS-08 will be installed on an existing sign truss. The DMS supplier must coordinate the work with the sign installation Contractor for Contract 62583 and furnish all mounting brackets, nuts, bolts, washers and ancillary materials required to secure the DMS sign to the existing structure.

The DMS supplier must furnish Shop Drawings detailing the connections to the sign truss for each DMS to the sign installation Contractor. The sign installation Contractor will forward the Shop Drawings to each Contractor that will be furnishing the sign truss for the particular DMS.

Terminology. Due to the varying definitions used in Dynamic Message Sign technology, this section defines specific terms as they apply to this specification.

Sign: The sign housing and its contents.

Sign Controller: Located in a ground cabinet or in the sign (as detailed in this specification), the sign controller specifies the message to be displayed. Messages can be selected either remotely from the central controller, locally from a laptop computer or from the front panel of the sign controller.

Central Controller: The MS Windows NT Server computer system and related software, which operates the system from a remote control site.

Laptop Computer: This computer can operate both as a remote client to the central controller and/or a maintenance terminal at the sign controller. In its maintenance terminal operation, an operator can connect the laptop computer to the sign controller and run diagnostic tests on the sign or select and program messages for that sign. In its remote client operation, an operator can dial-in to the central controller and gain full access to the functions of the central.

Workstation: This computer operates as a remote client to the central controller. A workstation operator can dial-in to the central controller and gain access to the functions of the central by using the appropriate access codes.

LED: Light Emitting Diode

Pixel: Any of the small discrete elements that, when arranged in a pixel matrix, create a character. A pixel contains a cluster of LEDs.

Pitch: Distance measured from center to center of adjacent pixels within a matrix. This distance is measured both horizontally and vertically.

Poll: The central controller and laptop computer are said to “poll” a sign when they request the sign’s status information. The term is derived from the periodic status polling, which a central can perform, but is loosely used to refer to any status request.

Message: Text; the information shown on the sign.

Display: The message seen by the motorist. A display may include more than one page of text (an alternating display). Any character or set of characters of a display may be flashed (a flashing display).

Neutral State: Sign is blank, or displaying a predefined message that is displayed regularly.

WYSIWYG: What You See Is What You Get. In this specification, this is the functionally of the LED DMS system where the central, workstation or laptop display mimics the actual message that is visibly displayed on the sign on an individual pixel basis.

Materials. All materials furnished, assembled, or fabricated 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 commonality. 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.

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 and shall withstand the effects of sand, dust, and hose-directed water. All connections shall be watertight.

(a) LED DMS

General. The sign shall be designed for a minimum life of 20 years, and constructed so as to present a clean and neat appearance. Poor workmanship shall be cause for rejection of the sign.

Sign Housing Construction. The nominal size of the sign including housing and mounting brackets shall be 26’-1” Wide, 8’6” High, and 45 ¼” Deep. It shall weigh 4000 pounds or less. Signs greater than these measurements may require additional review time to evaluate the structural adequacy of the Department’s standard sign trusses.

The sign housing shall have adequate room inside the sign housing for maintenance personnel. There shall be 18 inches of clear area between all equipment along the entire length of the sign housing from the 18-inch walkway up to 6 feet above the 18-inch walkway.

The sign housing shall be capable of withstanding a wind loading of 120 M.P.H. without permanent deformation or other damages, and 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 equipment within the sign housing shall be protected from moisture, dust, dirt and corrosion. The sign shall be constructed of aluminum alloy 5052-H32 or 3003-H14 which shall not be less than 1/8” thick, unless otherwise specified in this document. Framing structural members shall be made of aluminum alloy 6061-T6 or 6063-T5.

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 or aluminum. All materials used in construction shall be resistant to fungus growth and moisture deterioration. An inert dielectric material shall separate dissimilar metals.

All welding shall be by an inert gas process in accordance with the American Welding Society (AWS) Standards, ANSI/AWS D1.2-97. The LED DMS manufacturer's welders and welding procedures shall be certified by an ANSI/AWS Certified Welding Inspector to the 1997 ANSI/AWS D1.2-97 Structural Welding Code for Aluminum. Proof of certification of all the LED DMS manufacturer's welders and applicable welding procedures shall be supplied with the submittals. The name, phone number and address of the ANSI/AWS Certified Welding Inspector that certified the LED DMS manufacturer's welders and procedures shall also be provided with the submittals.

The number of seams shall be kept to a minimum. All exterior seams and joints shall be sealed to form a rain and weather tight enclosure.

All exterior seams shall be continuously welded by an inert gas process, except for the KYNAR 500 coated facia material.

The skin material shall be stitch welded to the internal structural members to form a unitized structure.

The housing face will be of three-piece construction, consisting of internal structural members, external facia panels and lens panel assemblies.

There shall be no exposed fasteners or welds on the housing face.

The internal Structural Members shall:

- Accommodate both display module mounting and air distribution.
- Retain the display modules in a manner to facilitate easy and rapid removal of each display module without disturbing adjacent display modules

The External Facia Panels shall:

- Be extruded aluminum
- Be designed to minimize heat conduction between the exterior surfaces and the interior components.
- Be finished with a matte-black, licensed-factory-applied KYNAR 500 Resin, fluropolymer-based coating system.

  The border and therefore, the external facia perimeter panels shall be a minimum of 12 inches wide.

The external facia panels shall be thermally isolated from the rest of the sign housing. The Engineer shall approve the design and materials used to accomplish this.

The Lens Panel Assembly shall consist of a KYNAR 500 coated aluminum mask over a clear glazing.

The Lens Panel Assembly shall be:

- Modular in design
- Interchangeable with no misalignment with the LED pixels
- Removable from within the main sign housing
- Sealed with a closed-cell resilient gasket

The Lens Panel Aluminum Mask shall be:

- 0.090 inch minimum thickness
- Finished with a matte-black, licensed-factory-applied, KYNAR 500 Resin, fluropolymer-based coating system
- 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 polycarbonate-LEXAN XL or equivalent
- ¼-inch thick minimum
- Clear in color
- Laminated and sealed to the inside of the lens panel aluminum mask using the 3M Scotch VHB joining system to form the lens panel assembly

The lens panel shall be heated to prevent fogging and condensation. An eight watt-per-foot, self-regulating, heat tape shall be provided along the bottom of the message area, between the glazing and the display modules. The sign controller shall control the heat tape. All heat tape terminal blocks shall be covered for safety.

The face will be finished with a matte-black, licensed-factory-applied, KYNAR 500 Resin, fluropolymer-based coating system. All other exterior surfaces will be a natural aluminum mill finish. All interior surfaces will be a natural aluminum mill finish. No painted surfaces shall be allowed. A certification shall be required from the licensed-factory KYNAR 500 coated for all aluminum face materials.

The face shall be uniform in appearance and completely free from distortion, gouges and any other flaws or defects.

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.

A three point lockable aluminum access door shall be provided at each end of the housing as shown in the plans to enable easy access to the walk-in housing. This shall make it possible for a single maintenance person to easily access the display modules.

This access door shall be 6' – 8" X 2' - 0"minimum. The door will be fitted with a handle operated locking mechanism, closed cell neoprene gasket and a stainless steel hinge.

The locking mechanism shall be a heavy-duty, industrial-strength, three-point, dead-bolt, center-case lock with a zinc finish. There shall be a handle on both the inside and the outside of the door. These handles shall be heavy-duty, industrial strength with a zinc finish on the inside handle and a chrome-plated finish on the outside handle. The outside handle shall be padlock-able.

Included in the door assembly shall be a device to hold the door open at 90 degrees

The sign housing shall have a continuous 18-inch wide walkway extending the full length of the sign. The walkway shall be made of 1/8 inch diamond tread 6061-T6 or 3003-H22 aluminum. All edges of the walkway grating must be finished to eliminate sharp edges or protrusions.

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

The exterior mounting assemblies shall be 6061-T6 aluminum alloy extrusions, 3/16-inch minimum thickness.

The angular alignment of the sign housing shall be adjustable in the vertical direction from zero (0) degrees to ten (10) degrees down in one degree increments to optimize the viewing angle.

Where directed by the Engineer, the mounting fixtures and structures shall be designed for a horizontal angular adjustment to optimize viewing angle. The mounting fixture and structural designs and/or modifications shall be approved by the Engineer prior to fabrication. The submitted drawings for mounting fixture and structure designs and/or modifications shall be done by an Illinois Licensed Professional Engineer, shall be dated and shall bear the Engineer's seal and a signature.

Environmental Controls. A humidity sensor shall be provided and sensed by the sign controller from zero percent to 100 percent relative humidity in one 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.

The ventilation system shall be a positive-pressure, filtered, forced-air system which cools both the display modules and the sign housing interior. Negative pressure systems that use exhaust fans are not acceptable.

The sign housing shall have two exhaust ports. Each exhaust port shall be filtered and protected by an aluminum hood assembly.

The ventilation system shall have a minimum of four fans. The fans shall be located on the intake side to produce a positive pressure system. Air shall be drawn into the sign housing through hoods near the top of the housing, then filtered before reaching the fan units.

The inlet and exhaust filters shall be electrostatic and shall be sized to properly accommodate the air flow and pressure drop requirements of the ventilation system. The inlet filters shall have an Initial Atmospheric Dust Spot Efficiency of 64 at 20 cm/s in accordance with ASHRAE 52.1. Filters shall be easily removable from within the sign housing without the use of tools.

The sign shall have two filter cartridges for air intake. Each filter cartridge shall contain a minimum of 60 filter media changes that will be automatically changed (advanced) when commanded by the sign controller. For each filter cartridge, the effective filtration area of each filter media change shall be a minimum of four square feet of filter media. Changing (advancing) the filter media shall be fully automatic and shall not require manual assistance. The sign controller shall read the solid state air flow sensors, the internal temperature sensors and the outside (ambient) temperature sensor and use this information in an algorithm to automatically change (advance) the filters when appropriate. Each time the filters are changed, the sign controller will notify the central controller at the next poll. The sign and central controllers will track the number of remaining changes. When a filter fails to change, the sign controller will notify the central controller of this failure at the next poll. Each filter cartridge shall be easily removable from within the sign housing without the use of tools and the filter media shall be replaceable.

There shall be an aluminum air plenum for each hood assembly and its associated filter. The air plenums will be sealed and designed to keep any water that gets through the hoods from getting into the sign housing interior. All water that builds up between the hoods and the filters shall drain to the exterior of the sign housing.

Each fan shall be capable of providing a minimum of one sign housing volume change per minute at the pressure drop developed throughout the entire ventilation system with all fans operating. The fans shall have ball or roller bearings, shall be permanently lubricated and shall require no periodic maintenance. The fans are to be positioned in such a manner so as to provide a balanced air flow to the ventilation system in the event of failure of any fan.

The sign shall have a minimum of two 100% solid state air flow sensors. Adequate air flow shall be automatically tested once a day and tested on command from the central controller or laptop computer. Inadequate airflow will cause the filter to be advanced and the airflow retested. If the airflow is still inadequate an error message is to be sent to the central controller or laptop computer when the sign controller is polled by the central controller or laptop computer.

Each of the three message lines shall be ventilated by an efficient forced air system. The air shall be directed to provide equal distribution of air to the bottom of each display module along each message line. Air shall be ducted directly from the fans to ducts at the bottom of each message line.

The duct at the bottom of each message line shall evenly distribute air into the cavity between each display module and the lens panel. The air shall then be exhausted out of the top of each display module. Air flow shall be sufficient to exchange a minimum of one volume of air every two (2) seconds in the void between each display module and the lens panel. Air shall also be directed uniformly to the back of the display modules.

All duct work that impedes access to any sign components shall be easily removable, without tools, for servicing of these components.

All ductwork shall be 0.040 minimum aluminum and shall be designed to be extremely efficient with minimal pressure drop throughout the system.

The ventilation system shall be activated by multiple temperature sensors. There shall be a minimum of one sensor located near the middle of each module line, at the top of the display module in the exhaust stream from the cavity between the display module and the lens panel. There shall be an additional temperature sensor located to accurately measure the ambient temperature outside the sign housing. The temperature sensors shall have an accuracy of +/- 1.5 degrees C and a range from -40 to +70 degrees C.

The temperatures from the sensors shall be continuously measured and monitored by the sign controller. A temperature reading greater than a user selectable critical temperature shall cause the sign to go to blank and the sign controller shall report this error message to the central controller.

The ventilation system shall be equipped with a manual override timer to provide ventilation for service personnel. The timer will have a maximum on-time of 1 hour.

The LED modules and electronic equipment shall be protected by a fail-safe, back-up fan control system in the event of an electronic fan control failure or shutdown of the sign controller.

Enough baseboard heaters shall be provided to warm the interior of the walk-in housing to 30 degrees F above ambient. A wind-up timer in the sign and remotely from the laptop and central computers shall control these heaters.

Interior Lighting, Wiring, and Equipment. The sign housing shall be furnished with a minimum of four incandescent lamps and three GFI duplex outlets. The lamps shall be spaced evenly above the walkway. The duplex outlets shall be spaced evenly on the back wall no more than three feet above the walkway. A 12-hour timer for the lights shall be located near the door. The light timer shall not incorporate a hold feature.

The lights shall be enclosed in heavy-duty fixtures. Each fixture shall have a die-cast aluminum housing, a twist-on guard secured by four set screws and a porcelain socket. There shall be a clear glass globe inside the twist-on guard. The globe shall be gasketed and fully enclose the lamp.

Inside the sign housing, all 120 VAC service lines shall be independently protected by a thermal magnetic circuit breaker at the sign housing entry point. All 120 VAC wiring shall be located in conduit, pull boxes, raceways or control cabinets as required by the National Electric Code (NEC). 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.

An aluminum, 39-inch by 12-inch minimum, fold-up work space for the laptop computer and an aluminum, 2.5-inch deep by 11-inch wide by 10-inch high minimum document holder shall be mounted on the back inside wall of the sign housing.

Electronic Components. The presence of power transients 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.

All electronic components, except printed circuit boards, shall be commercially available, easily accessible, replaceable and individually removable using conventional electronics repair methods.

All workmanship shall comply with ANSI/IPC-A-610B Class 2 titled “Acceptability of Electronic Assemblies”, ANSI/IPC-7711 titled “Rework of Electronic Assemblies”, and ANSI/IPC-7721 titled “Rework and Modification of Printed Boards and Electronic Assemblies”.

All electronic components shall comply with Section Electronic Materials and Construction Methods, located in this document.

All Printed Circuit Boards (PCBs), except for the LED mother board, power supply PCSs and 2070 Lite PCBs, shall be completely conformal coated with a 0.010 inch (10 MIL) minimum thickness silicone resin conformal coat. The LED mother boards shall be completely conformal coated, except at the pixels on the front of the PCB, with a 0.010 inch(10 MIL) minimum thickness silicone resin conformal coat. The material used to coat the PCBs shall meet the military specification: MIL-I-46058C Type SR.

Printed Circuit Boards (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.

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

All components shall be of such design, fabrication, nomenclature, or other identification so as to be purchased from a wholesale electronics distributor, or from the component manufacturer, except for printed circuit board assemblies:

Circuit design shall be such that all components of the same generic type, regardless of manufacturer, shall function equally in accordance with the specifications.

All discrete components, such as resistors, capacitors, diodes, transistors, and integrated circuits shall be individually replaceable. Components shall be arranged so they are easily accessible for testing and replacement.

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 shall be within 5% of tolerance over the specified temperature range. Any resistor shall not be operated in excess of 50% of its power rating.

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

Display Modules. Display modules shall be assembled to form a full matrix configuration of 27 by 105 pixels. The LED DMS shall consist of three lines of 21 display modules per line. This allows the display of three lines of 15 5x7 characters per line with double column spacing between characters. Each display module shall include an LED display circuit board. A piggyback daughter board shall attach directly to every third LED board. The daughter board shall control one to three LED boards. A single ribbon cable shall connect the daughter board to the LED boards it controls that are not directly attached to the daughter board. The LED board shall contain 45 LED pixels arranged into a 5x9 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 shall not require any address switches or adjustment when interchanged or placed in service.

Replacement of a complete display module shall be possible without the use of any tools.

The display module shall consist of two electronic sub-assemblies, an LED mother board and a daughter board.

The daughter board shall receive control signals and display data from the sign controller via a standard ribbon cable. The display module shall contain the control and memory elements and provide the signals to switch and read the LED pixels.

The LED board shall contain all LEDs required to form 45 pixels. Pixels shall be arranged uniformly to display an 18-inch dot-matrix character in five columns wide and seven pixels high. 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 inch, FR4, flat black printed circuit board. The LED board shall support the daughter board.

All LEDs shall be mounted so that their mechanical axis is normal +/- 1.00 degree 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 this criteria.

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.

The daughter boards shall connect to a single control ribbon cable common to each line of display modules.

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.

The LEDs shall be AlInGaP, Precision Optical Performance 1-3/4 diodes. The diodes shall have a 15 degree viewing angle with an amber color and a wavelength of 590 nanometers. The cone perimeter shall be defined by its 50% intensity points. The LEDs shall have standoffs that hold the base of the LEDs 3.5mm $\pm$ 1.0mm off the printed circuit board to promote cooling of the LEDs. Through-hole LEDs mounted flush to the printed circuit board are not acceptable. Surface-mount LEDs are not acceptable.

Each pixel shall be 40 candela at 20mA. 40 candela shall be attained by the sum of the brightness of the individual LEDs in each pixel. The brightness of each LED shall be measured in accordance with the CIE Test Method A, as described in CIE 127-1997, Technical Report: Measurement of LEDs. The LED brightness and color bins that are used in each pixel shall be provided to the engineer for approval.

Certification shall be provided, with the submittals, from the LED manufacturer that demonstrates that the LEDs were tested and binned in accordance with the CIE Test Method A.

Each pixel shall be a maximum of 1-3/8 inches in diameter. The LEDs in each pixel shall be clustered to maximize long range visibility. All pixels shall have equal color and on-axis intensity. All pixels in all signs in this project, including the spare parts, shall have equal color and on-axis intensity. The method used to provide the equal color and intensity, as stated above, shall be included in the submittals and approved by the Engineer.

Each pixel shall contain two strings of LEDs. The pixel strings shall be powered from a regulated DC power source and the LED current shall be maintained at 28 milliamperes or less per string 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 watts 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.

The voltage to the LED modules and associated electronics shall not exceed 25 VDC. 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 100% of all pixels at 100% duty cycle at 65 degrees C. Functioning supplies must current-share to within 10%. The combined effect of line (97 to 135 VAC) and load (10% to 100%) on the power supplies shall not exceed 1.0%. The efficiency of the power supplies shall be 75% or greater at 120 VAC and 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.

All LED module power supply voltages shall be continuously measured by the sign controller. The sign controller shall provide these voltage readings to the central controller or laptop computer when the sign controller is polled by the central controller or laptop computer. When a voltage drops below a critical value, the under voltage will be reported on the next poll from the master controller or laptop computer.

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. The voltage measured at the display modules shall not vary more than 50 millivolts over all the display modules in the sign with 17 pixels on at 100% intensity in each and every display module.

The signs shall be capable of displaying ASCII characters 32 through 126 (including all upper and lower case letters and digits from 0 to 9) at any location in a message line. If shown in the plans, a special graphics character shall be substituted for any of these characters.

The sign shall normally display single stroke (5 X 7) characters with double-column spacing between characters. The operator shall be able to display compressed (4 X 7), expanded (6 X 7) or double-stroke (7 X 7) character fonts and change the default spacing between characters. The spacing options shall be one, two or three pixel columns. Font access privileges shall be assigned by the system supervisor.

The display modules shall be rectangular, and shall have an identical horizontal and vertical pitch between pixels. The pitch shall be 2.750 inches.

The separation between the last column of one module and the first column of the next shall be equal to the horizontal distance between the columns of a single display module.

The separation between the last row of one module and the first row of the next shall be equal to the horizontal distance between the rows of a single display module.

The characters shall be legible under all light conditions at a distance of 1100 feet within a 15 degree cone of vision centered around the optical axis of the pixel. The cone perimeter shall be defined by its 50% intensity points.

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.

The brightness and color of each pixel shall be uniform over the entire face of the sign within the 15 degree cone of vision from 1100 feet to 200 feet 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.

Three (3) photocells shall be installed on the sign. These devices shall permit automatic light intensity measurement of light conditions at each sign location. These photocells shall be mounted in a manner to measure front, rear and ambient light conditions.

Automatic adjustment of the LED brightness shall occur in small enough increments so that the brightness of the sign changes smoothly, with no perceivable brightness change between adjacent levels. Provision shall be made to prevent perceivable brightening of the sign due to stray headlights shining upon the photo sensors at night.

Pixel brightness shall be controlled by pulse width modulation of the DC current. The pixel current waveform shall have a frequency of l00 +/- 5 Hertz at nighttime brightness levels and 2400 +/- 120 Hertz at daytime brightness levels with an adjustable duty cycle of 0.03 to 99.9% in 0.5% or finer increments. Brightness shall be manually settable from the front panel of the controller and remotely from the central computer in 1% increments. Brightness control shall be able to be returned to automatic from the sign controller front panel and the central computer.

Two separate types of pixel status feedback shall be provided to the central controller from the local sign controller. These include a pixel test and a pixel read.

Pixel Test: The pixel test shall be performed from the central controller on command and automatically once a day. During a pixel test, the full operational status of each string of LEDs in each pixel shall be tested and then transmitted to the central controller or laptop computer. This pixel status test shall distinguish the difference between half out, full out, half stuck-on and fully stuck-on pixels. A list of defective pixels shall be provided, listing pixel status, line number, module number, column number and row number for each defective pixel. The pixel test may briefly disturb the displayed message for less than 0.5 seconds.

Pixel Read: The pixel read shall be performed during both message downloads and during every sign poll from the central controller or laptop computer. The pixel read shall perform a real-time read of the displayed message and shall return the state of each pixel to the central controller as it is currently displayed to the motorist, including any errors. This shall allow the central controller operator to see what is visibly displayed to the motorist on an individual pixel basis. During a pixel read, the state of each pixel (full-on, half-on or off) in the sign shall be read by the sign controller to allow the central controller or laptop computer to show the actual message, including static, flashing and alternating messages, that is visibly displayed on the sign in a WYSIWYG format. This pixel reading shall take place while a message is displayed on the sign without disturbing the message in any way. Any flashing, flickering, blinking, dimming, or other disturbance of the message during this pixel read shall be cause for rejection of the sign.

The pixel read shall be an actual real time read of the current flowing through each string of LEDs at the time of the associated sign poll or message download and shall not be accomplished by simulating errors based on the last pixel test.

Power Requirements and TVSS. The sign and its sign controller shall be capable of operating with 120/240 VAC, 40 amp per leg, 60 hertz, single-phase power, and shall tolerate a +/- 15V swing in voltage.

The sign shall have a 40 amp two-pole (common trip) main, 120/240 VAC, single phase, four wire load center with 16 circuit capability. Each circuit in the sign shall be powered from a separate circuit breaker.

The system shall be protected by two stages of transient voltage suppression devices including MOVS and spark gap arrestor. If enabled by the central controller, tripping of both stages of surge protection shall prevent power from reaching any components of the sign until the surge protection has been replaced. Tripping of each stage 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).

Communication lines shall be protected by two stages of transient voltage suppression devices. 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.

(b) 2070 Lite Sign Controller.

General. Signs DMS-31L and DMS-31E located at 55th Street shall each contain a single dedicated sign controller, and the controller shall be mounted in the sign housing. Sign controllers for the remaining signs are furnished and configured under Contract 62947 for installation by others. The sign installation Contractor is to install the sign controllers in control cabinets furnished and installed in Contract 62583. These signs shall be configured to operate with remotely located sign controllers.

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 sign controller shall be programmed to receive sign control commands from the central controller or laptop computer, transmit responses as requested to the central controller or laptop computer, monitor sign and message status and control sign operation and message displays.

The 2070 Lite shall perform all communication, control and feedback functions and shall be the only sign controller apart from dedicated microcontrollers that control hardware. No intermediate sign controlling device or protocol converters shall be used. Proprietary sign controllers shall not be used.

A quick reference card shall be supplied with the controller to reference the major keypad commands and any permanent, stored messages.

The 2070 Lite 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 watch dog circuit will be utilized to provide automatic reset to the 2070 controller and the modem. The central computer shall be capable of remotely commanding a controller and modem reset.

Functionality. The sign controller shall be capable of being controlled from the central controller or the laptop computer.

The controller software shall be capable of performing the following functions:

Display a message, including:

1. Static messages
2. Flashing messages
3. Alternating messages

It shall be possible to separately vary the flashing and alternating frequencies.

Flashing messages shall have the following adjustable timing:

1. Message time on from 0.5 to 5.0 seconds in 0.1 second increments
2. Message time off from 0.5 to 5.0 seconds in 0.1 second increments

It shall be possible to flash any character or set of characters in any message.

Alternating messages shall have the following adjustable timing:

1. Primary message time on from 0.5 to 5.0 seconds in 0.1 second increments
2. Primary message time off from 0 to 5.0 seconds in 0.1 second increments
3. Alternate message time on from 0.5 to 5.0 seconds in 0.1 second increments
4. Alternate message time off from 0 to 5.0 seconds in 0.1 second increments

It shall be possible to flash any character or set of characters in an alternating message at the adjustable frequencies listed above for flashing messages. The flashing period shall be a submultiple of the alternating on-time it is associated with.

Report errors and failures, including:

1. Power failure
2. Power recovery
3. Pixel string failure
4. Low airflow
5. Over a user selectable critical temperature
6. Power supply failure

Message and status monitoring:

The sign controller shall respond to the central controller whenever it receives a request for status (a poll). The return message shall be capable of providing the following information:

1. Actual message that is visibly displayed on the sign on an individual pixel basis (full-on, half-on or off)
2. Current sign illumination level
3. Local Control Panel switch position (central, local or local override mode)
4. Error and failure reports
5. Temperature readings

6. LED power supply voltage levels
7. Origin of display message transmission (laptop, 2070 or central)
8. Heater status
9. Heat tape status
10. Beacon status
11. Uninterruptible power supply status (future)
12. AC Surge protection status
13. Communication line surge protection status

Severe error condition response:

In dial-up mode, the sign controller shall initiate a call to the central controller and report any severe error conditions. In multi-drop mode, the sign controller shall report severe error conditions to the central controller during the next polling.

The severe error conditions are:

1. AC power failure
2. AC power recovery
3. Surge protection has been tripped
4. The sign housing door is open

Each time the sign controller is polled by the DMS Master Controller or laptop computer, the sign controller shall test the operational status of the sensors listed below and return this information to the DMS Master Controller. This operational status test shall determine if each of the following sensors are functioning properly:

1. Each temperature sensor
2. Each photocell
3. Humidity sensor
4. Each airflow sensor
5. Each LED power supply sensor

The sign controller shall provide a library with a minimum of 50 permanent messages, consisting of 30 or less characters per line, stored in PROM. The sign controller shall also be able to accept a downloaded library from the central or laptop computer of a minimum of 25 changeable messages stored in non-volatile RAM. These messages may be called for display on the sign from the keypad on the front panel of the controller.

The sign controller shall also be capable of displaying messages on the sign that are downloaded from the central controller or laptop computer, but are not located in the library stored in non-volatile memory of the sign controller.

The sign shall normally display single stroke (5 X 7) characters with double-column spacing between characters. The sign shall also be able to display compressed (4 X 7), expanded (6 X 7) or double-stroke (7 X 7) nominal character fonts or change the default spacing between characters. The spacing options shall be one, two or three pixel columns. Each font may be edited and downloaded to the sign controller from the central controller or laptop computer at any time without any software or hardware modifications.

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 table in each individual sign controller shall be adjustable from the central controller and can be customized according to the requirements of the installation site. Each sign shall have its own, independent brightness table.

Brightness shall be manually settable from the front panel of the controller and remotely from the central computer in one percent increments from one to 99 percent.

There shall be a means to adjust how rapidly the sign responds to changes in ambient light as measured by the photocells. This can be used, for example, to prevent the sign from changing its brightness due to a vehicle’s headlight momentarily hitting the sign. The adjustment shall be made from the central controller or laptop computer and shall have two different settings, one for daytime control and one for nighttime control, with the day/night ambient light threshold also being an adjustable value. In addition, there shall be a means to specify different weighting factors for each photocell, to specify how prominently each photocell figures in the calculation of nighttime ambient light.

In the event of a power failure, the sign controller shall activate a programmable default message (which can be a blank message) and shall report the AC power failure to the central controller.

The operational status of each pixel in the sign shall be automatically tested once a day and tested when a pixel test is requested from the central controller or laptop computer. A list of defective pixels shall then be transmitted to the central controller or laptop computer, listing pixel status, module number, column number and pixel number. This pixel status test shall distinguish the difference between half-out, full-out, half stuck-on 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 messages are downloaded from the central controller or laptop computer, each pixel in the sign shall be read and its current state (full-on, half-on or off), for the currently displayed message, shall be returned to the central controller or laptop computer. This will allow the central controller or laptop computer to show the actual message that is visibly displayed on the sign on an individual pixel basis in a WYSIWYG format. (This is different from the pixel test listed above.)This pixel status read shall not affect the displayed message in any way. The pixel read shall be an actual real time read of the current flowing through each string of LEDs at the time of the associated sign poll or message download and shall not be accomplished by simulating errors based on the last pixel test.

There shall be no perceivable blinking, flickering or ghosting of the pixels at any time, except during a pixel test as described above. The displayed message will not be affected in any way at any time for the pixel status read as described above.

The operational status of the ventilation system, including the fans and filters, shall be automatically tested once a day and tested on command from the central controller, laptop computer or front panel of the sign controller. Any failure will cause an error message to be sent to the central controller or laptop computer when the sign controller is polled by the central controller or laptop computer.

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.

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 the sign controller shall report this error message to the central controller. This user selectable critical temperature shall be capable of being changed by the central controller or laptop computer. The central controller and laptop computers shall have the ability to read all temperature measurements from the sign controller.

All LED module power supply voltages shall be continuously measured by the sign controller. The sign controller shall provide these voltage readings to the central controller or laptop computer when the sign controller is polled by the central controller or laptop computer.

In the event the central controller fails to communicate with the sign controller within a programmable time limit, the sign shall activate a programmable default message (which can be a blank). This function shall apply only when the sign controller is in central control mode.

Failure of any sign shall not affect the operation of any other sign in the system.

The sign controller shall perform a consistency check of messages downloaded from the central controller or laptop computer to ensure that the message will fit in the display area of the sign. If any part of the message fails this check, the downloaded message shall not be displayed.

The sign controller internal time clock shall ensure that a message is taken down at the correct time, even in the event of a communications loss.

The sign controller shall maintain its internal time clock during power outages less than 255 minutes 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 central controller or laptop computer. The moving arrow shall be on 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.

The sign controller shall have a special function output bit to control an auxiliary blank-out sign. This shall be a closure to ground capable of sinking at least 10 ma. It shall be controlled from the central controller.

The sign controller shall be capable of being remotely reset from the central controller.

Modes of Operation. The mode of operation determines which level of control governs the DMS message selection. The three modes of operation are:

Central Mode: The local control panel switch is off and the central controller controls and monitors the sign.

Local Mode: The local control panel switch is on and the laptop computer or front panel of the sign controller is used to locally control the sign. The central controller only monitors the sign (i.e. status poll).

Local Override: The local mode has been overridden by the central to allow the central to control the sign in case the local control panel switch was unintentionally left in local mode.

(c) Laptop Computer. Laptop computer shall be used for local control of DMS in event of a master controller failure, communications failure to DMS master controller, remote operation and for routine maintenance and trouble-shooting of field hardware. Two laptop computers shall be provided regardless of the number of signs installed. The laptop computer shall provide on-site processing of all commands the sign controller has been programmed for. The laptop computer shall have the capability to function as both a DMS remote terminal and a maintenance terminal. The DMS vendor shall supply a copy with each laptop computer and two additional copies of the remote terminal and maintenance software. The DMS vendor shall provide the Department a license allowing the Department and Department's agents (electrical maintenance Contractor EMC) to use the terminal software on as many laptop computers as required for system maintenance and operation. The laptop computers shall be utilized in the Department's training.

The laptop computer shall be equal to or exceed Ruggedized Notebook model Rough Rider 3 Series:

- Water proof, shock resistant
- ISO-9001 compliant
- 810-E and 465C military specifications
- 14.1" TFT LCD, sunlight readable
- Pentium M, 1.6 GHz
- 512 Mb RAM
- 64 MB Video Memory
- 30GB UTA hard drive, removable
- Removable 3.5" floppy drive
- Lithium battery
- 256K on-die cache
- 1 serial, 1 parallel, USB, ext. display, keyboard and mouse ports
- I-EEE 1394 fire wire
- Windows 2000 (CD and manual)
- 1 year manufacturer warranty
- Back light rubber keyboard, water-proof
- 10-32 VDC car adapter / charger
- –20˚C low-temperature operating
- Two ¾ size PCI cards
- Bay 1: CDRW
- Bay 2: 56.5K + 100 base T module
- Pelican Case (Ruggedized case, not leather)
- Extra primary battery

(d) Multi-drop Modem. Modem shall only be furnished with signs DMS-03E, DMS-31E, DMS-32E, and DMS-04E, and shall be installed in the sign housings at these locations. The modem shall be suitable for temporary communication over leased lines until these signs are transferred to the fiber optic communication lines. Modem shall match the communications characteristics of the modems at the Traffic Systems Center office, and have an operating temperature range -37 to +74° C. Example modems are Models 419SA and 496SA.

(e) Fiber Optic Data Transceiver. One fiber optic data transceiver (FODT) shall be furnished with sign DMS-31L and installed in the sign housing. The FODT shall provide the interface between the sign controller and the fiber optic communication network. The FODT shall be an ethernet switch meeting the requirements of the port server as described below. The serial interface functionally shall only be required if the sign controller does not have built in RJ-45 10 BaseT capability.

Port Server. The port server shall be a fully integrated port server and fiber optic Ethernet switch. The port server shall act as a bridge between a high-speed Internet Protocol (IP) Ethernet network and low-speed serial devices. The port server shall comply with the following:

- Minimum of two (2) DB-9 or DB-25 male connectors.
- Shall provide serial communication at speeds 10000 bps and above
- Shall support point-to-point and point-to-multi-point modes.
- The serial interface shall be RS-232 DTE

The fully integrated Ethernet switch which shall comply with the following:

- Minimum of four (4) RJ-45 10/100TX Ethernet ports
- Shall provide auto-negotiation on 10/100TX ports
- Shall support 100BaseFX using single-mode fiber optic cable with either a LC or SC connector.
- Shall support the following network services: HTTP Telnet, and Com-port control.
- Shall provide a HTML web browser user interface for configuration and monitoring of the unit.

The port server shall provide bi-directional data transfer.

The port server shall comply with the following environment requirements:

- Shall operate on 120VAC
- Shall operate as specified over temperature range of -20 C to +70 C.

(f) Ground Control Box. The ground control box shall be installed only on signs DMS-31L and DMS-31E. The box shall be mounted to the sign support leg on the median barrier wall. The ground control box shall contain the following assemblies:

- Power-on indicator
- Waterproof local/remote switch
- Local control LED indicator
- Sign controller reset push-button switch
- Sign to ground voice communication RJ-11 jack
- 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 15 inches high by 15 inches wide by nine 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 full length 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. Two keys shall be provided for each cabinet.

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 insure a uniform dust and weather resistant seal around the entire door facing.

The voice / data / control cable shall be terminated with a single CHAMP type IDC connector on each end.

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 Contractor shall be responsible for all phone, data, control and confirmation connections between the sign and ground control box and for any required wiring harnesses and connectors.

CONSTRUCTION REQUIREMENTS

General. The DMS, including the sign housing and all modules and assemblies shall be designed and manufactured in the USA by the DMS manufacturer. The company that designs and manufactures the LED DMS shall be currently ISO 9001 certified as of the bid date for this project and shall have received its ISO 9001 certification a minimum of three years prior to the bid date for this project. The scope of this company's ISO 9001certification 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 certified. This company, this scope and the address of this facility shall all be listed on the ISO 9001 certificate. This ISO 9001 certificate shall be provided with the bid. The name, phone number and address of both the Authorized ISO 9001 Registrar that certified this company and the Authorized ISO 9001 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.

The LED DMS Signs and System shall be fabricated by an established DMS manufacturer having the minimum of:

1. 10 years experience, under the current corporate name, in the design and manufacturing of State Highway or Interstate Highway, permanently-mounted, overhead dynamic message signs and central control systems installed in freeway service. This 10 years of experience shall include the complete design and manufacturing of all aspects of the dynamic message signs, including the electronic hardware, software and sign housings.
2. 100 State Highway or Interstate Highway, permanently-mounted, overhead dynamic message signs installed in freeway service, under the current corporate name.
3. NTCIP – compliant LED DMS that successfully passed NTCIP tests that were administered by industry accepted independent companies.

The manufacturer of the LED DMS Signs and System shall submit documentary evidence and reference data for the above requirements from a minimum of three (3) different states that have been successfully operating a highway LED dynamic message sign system, and that completely meets these specifications, manufactured and supplied by this manufacturer, for a period of no less than five (5) years. Reference data shall include the name and address of the organization, and the name and telephone number of an individual from the organization who can be contacted to verify the above requirements. The name of the DMS manufacturer that meets these experience requirements shall have the same corporate name as the DMS manufacturer that meets the ISO 9001 requirements stated elsewhere in this specification. This information shall be provided prior to documentation submittal. Failure to furnish the above references will be sufficient reason for rejection of the supplier's equipment.

Shipment. The Contractor shall be responsible for the shipment and unloading of the DMS to a location to be designated within District 1. The unloading of DMS shall also include stacking the material, separated and off the ground, as recommended by the manufacturer. The DMS shall be packaged during shipment to protect all surfaces from being scratched, marred, chipped, or damaged in any way. The DMS shall also be insured during shipment. The DMS shall be shipped according to the following schedule:

DYNAMIC MESSAGE SIGN (DMS) DELIVERY SCHEDULE		
SIGN	**SIGN LOCATION**	**DELIVERY DATE**
DMS-30	SB Dan Ryan near 83rd St.	April 1, 2006
DMS-02	NB Dan Ryan near 83rd St.	April 1, 2006
DMS-03L	NB Dan Ryan near 57th St.	August 1, 2007
DMS-03E	NB Dan Ryan near 57th St.	September 1, 2006
DMS-31L	SB Dan Ryan near Garfield Blvd.	August 1, 2007
DMS-31E	SB Dan Ryan near Garfield Blvd.	July 1, 2006
DMS-32L	SB Dan Ryan near Pershing Road	August 1, 2007
DMS-32E	SB Dan Ryan near Pershing Road	July 1, 2006
DMS-04L	NB Dan Ryan near 37th St.	August 1, 2007
DMS-04E	NB Dan Ryan near 37th St.	September 1, 2006
DMS-08	NB Dan Ryan near Chicago River	April 1, 2006
DMS-A	SB Bishop Ford near cabinet J19 and Light Standard JB2	March 15, 2006
DMS-B	NB Bishop Ford near 145th St.	March 15, 2006

Exact delivery dates shall be closely coordinated with the Engineer and the sign installation Contractor. Extensions past the due date will not be allowed, except as allowed in writing by the Engineer. The Contractor and/or DMS Manufacturer under this contract shall coordinate DMS production with the DMS delivery schedule and shall be responsible for any storage required to match the DMS delivery schedule. Storage up to 45 calendar days past the dates shown in the DMS delivery schedule shall be included in this item. Additional storage past these dates shall be paid for under STORAGE OF DYNAMIC MESSAGE SIGN. Payment shall only be made for completed signs. Signs which have their delivery dates pushed back by advance notice from the sign installation contractor and which have not been fabricated by the manufacturer shall not receive storage payment.

Delay in delivering each DMS will result in the assessment of liquidated damages to the Contractor and/or DMS manufacturer in the amount of $3,000 per calendar day until the DMS is delivered as specified. The Contractor and/or DMS manufacturer will be allowed to deliver the DMS prior to the delivery date if the installation Contactor and the Engineer are ready for the installation.

All costs associated with the shipment of the DMS are to be included in this pay item and additional compensation will not be allowed.

Installation. All signs will be installed by the sign installation Contractor. The sign manufacturer shall provide installation support services as described below.

The Contractor is responsible for integrating the new signs into the existing Central Control system at the Traffic Systems Center in Oak Park, IL. The NTCIP driver shall be provided to the successful DMS vendor for system integration.

The DMS manufacturer's technical representative shall also provide on-site technical assistance in the following areas:

1. Sign to controller cabling
2. Initial sign turn on and test

The initial powering up of the sign(s) shall not be executed without the permission of the DMS manufacturer's technical representative. The DMS manufacturer shall provide three days of on-site technical assistance for each sign installed. This time is in addition to any time required to configure the signs for operation at the TSC.

The DMS shall be warranted for a minimum of five years against defects and/or failure in design, materials and workmanship. Warranty coverage shall become effective on the date of final acceptance of the system by the Department. The Contractor shall assign to the Department all manufacturer's normal warranties or guarantees, on all such electronic, electrical and mechanical equipment, materials, technical data, and products furnished for and installed on the project. Defective equipment shall be repaired or replaced, at the manufacturer's option, during the warranty period at no cost to the Department.

Testing and Training. The DMS equipment shall be subjected to stand-alone tests, systems tests and 72 hour and 90 day test periods to determine conformance with all the specification requirements. Design approved tests (DAT) and factory demonstration tests (FDT) shall be performed by the DMS vendor. The DMS vendor shall coordinate with the sign installation Contractor to arrange for and conduct the tests in accordance with the testing requirements stated herein. Unless otherwise specified, the DMS supplier is responsible for satisfying all inspection requirements prior to submission for the Engineer's inspection and acceptance. The Contract periods will not be extended for time lost or delays caused by testing prior to final Department approval of any items. The Engineer reserves the right to have his representative witness any and 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 Engineer. Rejected equipment may be offered again for a retest provided that all non-compliances have been corrected and retest by the DMS vendor and evidence thereof submitted to the Engineer.

Final inspection and acceptance of equipment shall be made after installation at the designated location as shown on the plans, unless otherwise specified herein.

The DMS supplier shall provide five (5) copies of all stand-alone and system test procedures and data forms for the Engineer's approval at least sixty (60) 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 Engineer's approval prior to submission of equipment for tests.

The DMS supplier 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 copy of the data forms shall be sent to the Engineer.

The DMS supplier shall provide the test fixtures and test instruments for all of the tests.

The DMS supplier 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 plans, or as directed by the Engineer. Approved data forms shall be completed and turned over to the Engineer as the basis for review and rejection or acceptance. At least thirty (30) working days' notice shall be given prior to all tests to permit the Engineer or his representative to observe each test.

If any unit fails to pass its stand-alone 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 stand-alone test failure, a report shall be prepared and delivered to the Engineer prior to the re-testing of the unit. The report shall describe the nature of the failure and the corrective action taken. If a failure pattern develops, the Engineer may direct that design and construction modifications be made to all units without additional cost to the Department or extension of the Contract period.

The DMS supplier shall conduct approved DMS system tests on the field equipment with the central equipment. The tests shall, as a minimum, exercise all remote control functions and display the return status codes from the controller. Approved data forms shall be completed and turned over to the Engineer as the basis for review and for rejection or acceptance.

If system tests fail because of any components(s) in the subsystem, the particular components(s) shall be corrected or substituted with other components(s) and the tests shall be repeated. If a component has been modified as a result of the system test failure, a report shall be prepared and delivered to the Engineer prior to retest.

After the installation of the DMS system is completed and the successful completion of the System Test, the DMS supplier shall conduct one continuous 72-hour full operating test prior to conducting a 90-day test period. The type of test to be conducted shall be approved by the Engineer, and shall consist primarily of exercising all control, monitor and communications functions of the field equipment by the central equipment.

The 90-day 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-day test period, downtime, due to mechanical, electrical and/or other malfunctions, shall not exceed five (5) working days. The Engineer may extend the 90-day test period by a number of days equal to the downtime in excess of five (5) working days. The Engineer will furnish the DMS supplier with a letter of approval stating the first day of the 90-day test period.

Final system acceptance shall be defined as when all work and materials provided for in this item have been furnished and completely installed, and all parts of the work have been approved and accepted by the Engineer and the Dynamic Message Sign System has been operated continuously and successfully for ninety (90) calendar days with no more than five (5) working days downtime due to mechanical, electrical and/or other malfunctions.

The DMS supplier shall provide operational and maintenance training for the entire system to designated personnel during installation, testing and debugging. This training shall be provided through practical demonstrations and other related technical procedures. Training shall be limited to a maximum of 15 people and shall be provided at a time and location approved by the Engineer. 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
5. Servicing procedures
6. System trouble-shooting or problem identification procedures

A minimum of 40 hours of instruction shall be provided for the operational and maintenance procedures for the system. The DMS supplier shall submit an agenda for the training and one complete set of training materials along with the qualification of proposed instructors to the Engineer for approval at least 30 days before the training is to begin. The Engineer will review material and approve or request changes. After approval, the vendor shall provide a minimum of 5 copies of the training material that will become the property of the Department after the training period is over.

The DMS supplier shall videotape the entire training on VHS tapes and shall provide the tapes to the Engineer for later use. The training shall be conducted at District One Traffic Systems Center building where the control room is located, after the completion of all system integration tests. The schedule of training sessions shall be established by the DMS supplier, with the approval of the Engineer.

Final Documentation. The Contractor shall provide to the Engineer the following as-built documentation of the complete installed equipment prior to testing. 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 Engineer.

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. Five copies of 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, list 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 text books. This 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.
4. 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. Specification, including tolerances, for all electrical, mechanical, and other applicable measurement, adjustments, or both, shall be listed.
5. Data necessary for isolation and repair of failure or malfunctions, assuming the maintenance technicians to be capable of analytical reasoning using the information provided in the submittal information. 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.
6. Detailed instructions shall be given only where failure to follow special procedures would result in damage to the equipment, improper operation, danger to operating or maintenance personnel. Consumption of excessive person hours, etc. Such instructions and specifications shall be included only for such maintenance as maybe

accomplished by specialized technicians and engineers in a modern electromechanical shop. The instructions shall describe special test set-up, components fabrication, the use of special tools, jibs and test equipment.

7. A detailed physical description of size, weight, special mounting requirements, electrical connections, and all other pertinent information necessary for proper installation and use of the equipment shall be provided.
8. 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 all assemblies, sub-assemblies and replacement parts of units. The tabular arrangement shall be an 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 shall be provided for the purpose of identifying major components, assemblies, etc.
9. 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 shall be limited to allow their use in close proximity to the equipment, in the class room, etc., part reference symbols, test voltages, waveforms and other aids to understanding of the circuits function shall be included on the diagrams. Test voltages, waveforms and other aids to understanding of the circuits function may be shown on either 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.

The DMS supplier shall provide manuals and data for the computer software system and components thereof. These shall include the following:

1. Computer programmer's manuals and computer user's manuals (5 copies each). Include manuals for any CPU language used by the Contractor for this project. Include instructions for performing a back-up of all software and message libraries.
2. Two original copies of the computer's operating system manual and compiler and assembly language manuals and an instruction manual for translating source to object code.
3. Manufacturer's documentation (including schematics) for all plug in circuit cards used in the microcomputer chassis.
4. Computer program logic in flow chart form (5 copies).
5. Narrative descriptions of programs and input output formats (5 copies).
6. Two copies of source programs, for master and sign controller software, shall be provided on 3½" diskettes or CD-ROM. An unrestricted license for software use by the Department shall be provided to the Engineer.
7. DMS supplier shall provide the communication protocol used between the DMS master controller and the DMS sign controller for use by the Department without any restrictions.

Final documentation shall reflect all field changes and software modifications and shall be provided before installation. Final documentation shall be approved prior to final system acceptance has begun. This document 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-coded function, the routing of all conductors (pairs) in the communications system. Upon completion of the installation, the Contractor shall submit these plans, maps, and/or drawings to reflect an as built condition, incorporating all changes made during installation, such as in pair identification and routing.

Method of Measurement. The LED Dynamic Message Sign Full-Matrix Configuration, Material Only bid item will be measured for payment by the actual number of LED Dynamic Message Sign Full-Matrix Configuration assemblies furnished, tested, and accepted and shall be counted, each.

Basis of Payment. This item shall be paid for at the Contract unit price for each LED DYNAMIC MESSAGE SIGN FULL-MATRIX CONFIGURATION, MATERIAL ONLY assembly which shall be payment in full for all material, labor, transport, equipment, tools, and certifications.

CABINET, MODEL 334, MATERIAL ONLY

Description. Work under this item shall consist of furnishing a Model 334 cabinet for dynamic message sign controller cabinets and UPS systems.

Materials.

General. Cabinet, Model 334 shall be a durable, weatherproof enclosure, constructed of 3/16-inch thick aluminum or 1/8-inch thick aluminum lined with bullet resistant fiberglass panels that shall be UL Listed and tested for UL752 Level 3 with a nominal thickness of ½-inch maximum, and a nominal weight of 5.0 pounds per square foot maximum. The cabinet shall have nominal outside dimensions of 66 inches high X 24 inches wide X 30 inches deep. Cabinet, Model 334 shall consist of the following components: double door each equipped with a lock for front and rear cabinet entry, housing, mounting cage, power distribution assembly, service panel, thermostatically controlled fan, and all necessary mounting hardware and wiring, and other equipment, as shown on the Plans and specified in these special provisions.

All bolts, nuts, washers, screws, hinges, and hinge pins that are subject to corrosion shall be stainless steel unless otherwise specified. All equipment under this item shall be in accordance with Section 1074.03 of the Standard Specifications except as modified herein.

Cabinet Components. The housing and the mounting cage assembly shall conform to those of the Model 334 cabinet provisions of the "Traffic Signal Control Equipment Specifications" (TSCES) issued by the State of California, Department of Transportation, and to all addenda thereto current at the time of project advertising. The housing shall be rainproof with the top of the enclosure crowned to prevent standing water. All exterior seams for the enclosure and doors shall be continuously welded and shall be smooth. The housing shall have no provisions for a police panel or door.

The cabinet shall have single front and rear doors, each equipped with a lock. The enclosure door frames shall be double flanged out on all 4 sides and shall have strikers to hold tension on and form a firm seal between the door gasketing and the frame. The front and rear doors shall be provided with catches to hold the door open at both 90 and 180 +/- 10 degrees. Gasketing shall be provided on all door openings and shall be dust-tight. For horizontal support and bolt attachment, cage bottom support mounting angles shall be provided on either side, level with the bottom edge of the door.

The latching handles on the doors shall have provisions for padlocking in the closed position. When the door is closed and latched, the door shall be locked. The locks and handles shall be on the right side of the front door and the left side of the rear door. The lock and lock support shall be rigidly mounted to the door. The locks shall be Corbin #2 and two keys shall be supplied to the Department with each lock. The keys shall be removable in the locked position only.

The front and rear doors shall be provided with louvered vents. A removable and reusable air filter shall be housed behind the door vents. The filter filtration area shall cover the vent opening area, and the filter shell shall be provided that fits over the filter providing mechanical support for the filter. The shell shall be louvered to direct the incoming air downward.

The intake (including filter with shell) and exhaust areas shall pass a minimum of 60 cubic feet of air per minute for housing #1 and 26 cubic feet of air per minute for housing #2. The thermostatically controlled fan with ball or roller bearings shall be mounted within the housing and vented. The fan shall provide a capacity of at least 150 cubic feet of free air delivery per minute of ventilation. The fan shall be thermostatically controlled and activated when the temperature inside the cabinet exceeds 75 degrees Fahrenheit and shut off when the temperature is less than 64 degrees Fahrenheit. In addition, the fan shall be manually adjustable for automatic turn on and off. The fan circuit shall be protected at 125% of the fan motor ampacity.

The housing shall also be equipped with a heating element installed in the bottom front of the cabinet and mounted along the side of the rack. The heating element shall draw 500 watts and have an output of at least 1700 BTU/hr. The heater shall have a built-in quick response thermostat with sealed contacts that has a temperature control range of 40°F to 100°F, and have a built-in thermal cut-off to automatically shut-off the heater in the event of overheating.

All subassemblies shall be mounted in removable 19 inch EIA self-standing rack assemblies. The EIA rack portion of the cage shall consist of 2 pairs of continuous, adjustable equipment mounting angles that comply with Standard EIA RS-310-B. The cage shall be centered within the cabinet and bolted to the cabinet at 4 points.

The DMS controller cabinet shall be equipped with 2 shelves. One shelf shall be fixed and the other shall be a slideout shelf suitable for resting a laptop computer on.

The UPS cabinet shall be equipped with 4 shelves. One shelf shall be a slideout shelf suitable for resting a laptop computer on and the other three shall be fixed. The fixed shelves shall be suitable for supporting the batteries.

The power distribution assembly shall have as a minimum: one 50 A, 2-pole, 240 V main circuit breaker; five 15 A, 1-pole, 120 V secondary circuit breakers; eight standard 117 VAC controller and equipment receptacles; and one duplex, 3 prong, NEMA GFI type 5-15R grounded outlet.

Rating of breakers shall be shown on face of breaker or handle. Breaker function shall also be labeled below breakers on front panel. The first equipment receptacle in the circuit shall have ground-fault circuit interruption as defined in the NEC. Circuit interruption shall occur on 6 mA of ground-fault current. All conductors from the power distribution assembly routed to the cabinet wiring shall be connected to the terminal block on the common side, except for the AC power conductor between the service terminal block and main circuit breaker. All internal conductors terminating at the blocks shall be connected to the other side of the blocks.

Two side panels shall be provided and mounted on the cabinet sidewalls. In viewing from the front door, the left side panel shall be designated as the “Input/Communications” and the right side panel shall be designated as the “Service Panel”. The panel shall be drilled and tapped, as necessary, to mount the terminal blocks and other attachments described herein, as well as to mount the panel to the cabinet wall.

The terminal blocks shall be barrier type rated at 20 A, 600 V RMS minimum. The terminal screws shall be nickel-plated brass binder head type with screw inserts of same material. The terminals of the power line service terminal block shall be labeled “AC+, AC-, and AC GND”, and shall be covered with a clear insulating material to prevent inadvertent contact. Terminating lugs large enough to accommodate No. 4/0 conductors shall be furnished for the service terminal block. The service terminal block shall be rated for 100 A at 600 V peak, minimum.

Surge suppression shall be provided by a two stage system using metal oxide varistors (MOV) and spark gap arrestors. The clamping voltage of the system shall be 280 V on 240 V lines for the first stage and 320 V on 240 V lines for the second stage.

Each cabinet shall be equipped with two fluorescent lighting fixtures mounted to the inside top front portion of the cabinet. The fixtures shall have an F-15-T-8 cool white lamp; operated from a normal power factor, UL listed cold weather ballast. A door-activated switch shall be installed to turn the cabinet lights on when the front door or rear door is opened. The door switches shall be on a separate circuit by themselves and used only to turn on the cabinet lights.

Each cabinet shall be supplied with a heavy-duty plastic envelope to store plans, wiring diagrams, schematics, etc. This envelope shall have metal grommets so that it hangs from the door hooks. The envelope shall have minimum dimensions of 10 inches x 15 inches.

Identification. The Cabinet, Model 334 shall be identified and labeled with external markings as specified in Article 1069.02 of the Standard Specifications and as shown on the Plans.

CONSTRUCTION REQUIREMENTS

The Contractor shall deliver the Cabinet Model 334 mounted on a ply board-shipping pallet that is bolted to the cabinet base. The cabinet shall be enclosed in a slipcover cardboard packaging shell. The housing doors shall be blocked to prevent movement during transportation to the site.

The neutral bus shall be isolated from the cabinet and equipment ground. It shall terminate at the neutral lug ultimately attached to the meter pedestal. All conductors used in cabinet wiring shall terminate with properly sized non-insulated (if used, for DC logic only) or clear insulated spring-spade type terminals except when soldered to a through-panel solder lug on the rear side of the terminal block or as specified otherwise. All conductors, except those, which can be readily traced, shall be labeled. Labels attached to each end of the conductor shall identify the destination of the other end of the conductor. Cabling shall be routed to prevent conductors from being in contact with metal edges. Cabling shall be arranged so that any removable assembly may be removed without disturbing conductors not associated with that assembly.

All equipment in the cabinet, when required, shall be clearly and permanently labeled using marker strips. The marker strips shall be made of material that can be easily and legibly written on using a pencil or ballpoint pen. Marker strips shall be located immediately below the item that they are to identify and must be clearly visible with the items installed.

DMS and UPS cabinets shall meet the requirements of these specifications and of the DMS manufacturer. The requirements listed in this specification are minimum construction guidelines and shall be adjusted as required to meet the selected sign manufacturer requirements. No additional compensation shall be provided to meet these requirements. These cabinets shall only be ordered after the DMS manufacturer has been selected and has approved the cabinet shop drawings.

Installation. The cabinet shall be installed by the sign installation Contractor.

Shipment. The shipment of UPS systems shall be as described in the shipment section of; LED DYNAMIC MESSAGE SIGN FULL MATRIX CONFIGURATION, MATERIAL ONLY. DMS controller and UPS cabinets for each sign shall be shipped with the signs.

Tests. Cabinet Acceptance Test - In addition to the environmental and design approval tests specified in the FHWA Type 170 Traffic Signal Control System Hardware Specification, the following water spray test shall be performed for each type of cabinet:

> Spray water from a point directly overhead at an angle of 60 degrees from the vertical axis of the cabinet. Repeat for each of eight equally spaced positions around the cabinet for a period of five minutes in each position. The water shall be sprayed using a domestic type-sprinkling nozzle at a rate of not less than 10 gal/min per minute per square foot of surface area. The cabinet shall then be inspected for leakage. Evidence of water leakage shall be cause for rejection.

Operational Standalone Test - The operational standalone test for each Cabinet, Model 334 installed shall consist of the following:

> Visual inspection of the cabinet and its contents for workmanship
> Verification of the cabinet grounding in accordance with Article 1074.03(a)(4) of the Standard Specifications
> Measurement of the voltage at the input panel

Documentation. Shop drawings and wiring lists showing the proposed layout of each type of cabinet shall be submitted to the Engineer for approval prior to the start of fabrication. Wiring lists for the internal manufacturer cut sheets for all electrical equipment included in each type of cabinet shall be included in the submission.

Four copies of drawings showing the wiring for each cabinet shall be provided. One copy shall be placed in the clear plastic envelope furnished as part of the cabinet. The other three copies shall be delivered to the Engineer.

For each cabinet, four copies of a configuration of the equipment reporting to that cabinet shall be provided. The sheet shall also list field setable options for the equipment contained in the cabinet. This shall include device addresses and output voltage settings for power supplies. One of these copies shall be placed in the clear plastic envelope furnished as part of the cabinet. The other three copies shall be delivered to the Engineer.

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. The warranty shall warrant and guarantee repair of the component parts of the Cabinet Model 334 furnished by the Contractor that prove to be defective in workmanship and materials during the first two years of operation as defined and noted above at no additional cost to the Department.

The Engineer will notify the Contractor that a warranted item needs repair. The Contractor shall acknowledge the notification within 24 hours and replace or correct any part or parts of materials and equipment that are found defective within the two-year in-service warranty period. All items needing repair shall be returned to the Department in two weeks from the date of receipt at the Contractor's facility or replaced in-kind by the Contractor, and the Contractor shall be responsible for any return shipping costs. No compensation will be made to the Contractor for such replacements or corrections.

The Contractor shall provide a warranty certificate for this item and its related components to the Department. The Department reserves the right to transfer this service to other parties who may be Contracted with in order to provide overall maintenance of this item.

Method of Measurement. The CABINET, MODEL 334, DYNAMIC MESSAGE SIGN, MATERIAL ONLY and CABINET, MODEL 334, UNINTERRUPTIBLE POWER SYSTEM, MATERIAL ONLY bid items will be measured for payment by the actual number of CABINET, MODEL 334, DYNAMIC MESSAGE SIGN, MATERIAL ONLY and CABINET, MODEL 334, UNINTERRUPTIBLE POWER SYSTEM, MATERIAL ONLY assemblies furnished, tested, and accepted and shall be counted each.

Basis of Payment. CABINET, MODEL 334, DYNAMIC MESSAGE SIGN, MATERIAL ONLY and CABINET, MODEL 334, UNINTERRUPTIBLE POWER SYSTEM, MATERIAL ONLY

measured as provided above, will be paid for at the Contract unit price each, which price shall be payment in full for furnishing the cabinet and all connections; testing, and for all transportation and incidentals necessary to complete this item of work.

CABINET, MODEL 334 EQUIPMENT, UNINTERRUPTIBLE POWER SYSTEM, MATERIAL ONLY

Description. This specification shall govern the furnishing of uninterruptible power systems (UPS) in associated equipment cabinets as shown in the plans and as detailed in this specification.

A UPS shall be provided to supply power to the LED dynamic message sign (DMS) when there is an AC power failure. This system shall provide sufficient power to allow the sign to properly operate for a minimum of twenty-four (24) hours under the following conditions:

- LEDs driven at 100% brightness (Overbright) for up to two (2) hours
- LEDs driven at 30% brightness (Daytime) for up to twelve (12) hours
- LEDs driven at 5% brightness (Nighttime) for up to ten (10) hours
- 30% of the pixels on
- Ambient temperatures of -40 degrees C to +50 degrees C
- Fans and heaters off

Materials.

The UPS shall consist of the following major items:

(a) Batteries

The batteries shall be 12-volt, sealed, deep cycle, zero-maintenance, absorbed glass mat batteries. The batteries shall feature pressure regulated, non-removable safety vent valves. Under any charging condition, the batteries shall not produce greater than 2% hydrogen gas. The batteries shall not be restricted from shipment by air and shall pass DOT 49 CFR Sec. 173.159.

A sufficient quantity of batteries shall be supplied to provide 24 hours of sign operation under the operating criteria given above.

(b) Cabinet
The cabinet shall be as described in and paid for under pay item: CABINET, MODEL 334, UNINTERRUPTIBLE POWER SYSTEM, MATERIAL ONLY.

(c) Intelligent Battery Charger

An intelligent battery charger shall be provided to charge the batteries. This charger shall have the following features:

- Over temperature protection
- Input voltage range from 90 to 135 VAC
- Current limited
- Short circuit protected
- Total reverse polarity protection
- Charger output specifically for AGM battery type
- Charge voltage compensated for temperature
- Battery voltage sensor

(d) A DC to AC Inverter

An inverter shall be provided to convert the 12 VDC battery power to the 120 VAC power required by the sign. This inverter shall have a minimum efficiency of 80% at the rated load and have a sine wave output.

(e) Local Control Panel

The local control panel shall be provided to allow connection of a laptop computer to the sign for testing and maintenance purposes. The panel and laptop computer shall be the interface to all local command and monitoring functions at the sign. The panel shall contain the following assemblies:

- Power-on indicator
- Waterproof local/remote switch
- Local control LED indicator
- Sign controller reset push-button switch
- Sign to ground voice communication RJ-11 jack
- RS-232 connection for the portable laptop computer

- RS-232 cable a minimum of 4 feet long to connect the laptop computer

The voice, data, and control cables shall be terminated with a single CHAMP type IDC connector on each end. All voice, data, and control cables and connections between the sign controller and local control panel shall be provided under this item.

The UPS shall be interfaced with the sign controller such that the sign controller can read the battery voltage sensor and use its value in an algorithm to estimate the remaining battery life. The sign controller shall report this estimate to the central controller at each poll.

During each poll, the sign controller shall also report fans and heaters that are not operational under battery backup that would otherwise be operational under AC power for the current environmental conditions.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall prepare a shop drawing which details the complete UPS assembly and all components to be supplied. The submittal shall fully document the interconnection of all of the components and the cabling. Detailed drawings shall also be provided indicating the proposed layout of the cabinet.

One copy of all operations and maintenance manuals for each UPS assembly's components shall be delivered for each assembly installed.

The operations training and warranty for the UPS must be the same as those provided for the DMS sign.

All equipment furnished under this pay item must be approved as being compatible with the DMS by the DMS manufacturer prior to procurement of the equipment.

Installation. All equipment, terminal blocks, connectors, wires, and connections necessary to complete the installation and make the UPS operational shall be considered incidental to this pay item. UPS equipment shall be installed in the 334 cabinets prior to shipment. The cabinets shall be installed by the sign installation Contractor.

Shipment. The shipment of UPS systems shall be as described in the shipment section of; LED DYNAMIC MESSAGE SIGN FULL MATRIX CONFIGURATION, MATERIAL ONLY. UPS systems for each sign shall be shipped with the signs.

Testing. The Engineer reserves the right to inspect and/or factory test any completed assemblies, prior to delivery of the material to the project site. The purpose of the test is to verify that all aspects of the UPS are fully compliant with the specifications. Any deviances from these specifications that are identified during such testing shall be corrected prior to shipment of the assembly to the project site.

The Operational Standalone test shall also verify that all functions of the system are fully operational. A test procedure shall be supplied for approval by the Engineer a minimum of one week prior to the scheduled start of this test.

Method of Measurement. The CABINET, MODEL 334 EQUIPMENT, UNINTERRUPTIBLE POWER SYSTEM, MATERIAL ONLY bid item will be measured for payment by the actual number of CABINET, MODEL 334 EQUIPMENT, UNINTERRUPTIBLE POWER SYSTEM, MATERIAL ONLY assemblies furnished, activated, tested, and accepted, and shall be counted, each.
Basis of Payment. Payment will be made at the Contract unit price for each CABINET, MODEL 334 EQUIPMENT, UNINTERRUPTIBLE POWER SYSTEM, MATERIAL ONLY assembly which shall be payment in full for the material and work described herein.

CABINET, MODEL 334 EQUIPMENT, DYNAMIC MESSAGE SIGN, MATERIAL ONLY

Description. This specification shall govern the furnishing of dynamic message sign (DMS) control systems in designated field locations and associated equipment cabinets as shown in the plans and as detailed in this specification.

Materials.

The DMS control system shall consist of the following major items:

(a) 2070 Lite Sign Controller

The controller shall be as described in and paid for under specification section: LED DYNAMIC MESSAGE SIGN FULL MATRIX CONFIGURATION, MATERIAL ONLY.

(b) Cabinet

The cabinet shall be as described in specification section: CABINET, MODEL 334, MATERIAL ONLY. The cabinet shall be paid for under pay item: CABINET, MODEL 334, DYNAMIC MESSAGE SIGN, MATERIAL ONLY.

(c) Multi-drop Modem

The modem shall be suitable for communication over leased lines. Modem shall match the communications characteristics of the modems at the Traffic Systems Center office, and have an operating temperature range -37 to +74° C. Example modems are Models 419SA and 496SA.

(d) System Interface Boards

Interface boards shall be as required by the DMS manufacturer to communicate between the sign and sign controller.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall prepare a shop drawing which details the complete DMS control cabinet assembly and all components to be supplied. The submittal shall fully document the

interconnection of all of the components and the cabling. Detailed drawings shall also be provided indicating the proposed layout of the cabinet.

One copy of all operations and maintenance manuals for each DMS control cabinet assembly's components shall be delivered for each assembly installed.

The operations training and warranty for the DMS control cabinet must be the same as those provided for the DMS sign.

All equipment furnished under this pay item must be approved as being compatible with the DMS by the DMS manufacturer prior to procurement of the equipment.

Installation. All equipment, terminal blocks, connectors, wires, and connections necessary to complete the installation and make the control system operational shall be considered incidental to this pay item. DMS controller equipment shall be installed in the 334 cabinets prior to shipment. The cabinets shall be installed by the sign installation Contractor.

Shipment. The shipment of DMS controllers shall be as described in the shipment section of: LED DYNAMIC MESSAGE SIGN FULL MATRIX CONFIGURATION, MATERIAL ONLY. DMS controllers shall only be supplied with signs DMS-A and DMS-B, and shall be shipped with the signs.

Testing. The Engineer reserves the right to inspect and/or factory test any completed assemblies, prior to delivery of the material to the project site. The purpose of the test is to verify that all aspects of the DMS control cabinet are fully compliant with the specifications. Any deviances from these specifications that are identified during such testing shall be corrected prior to shipment of the assembly to the project site.

The Operational Standalone test shall also verify that all functions of the system are fully operational. A test procedure shall be supplied for approval by the Engineer a minimum of one week prior to the scheduled start of this test.

Method of Measurement. The CABINET, MODEL 334 EQUIPMENT, DYNAMIC MESSAGE SIGN, MATERIAL ONLY bid item will be measured for payment by the actual number of CABINET, MODEL 334 EQUIPMENT, DYNAMIC MESSAGE SIGN, MATERIAL ONLY assemblies furnished, activated, tested, and accepted, and shall be counted, each.

Basis of Payment. Payment will be made at the Contract unit price for each CABINET, MODEL 334 EQUIPMENT, DYNAMIC MESSAGE SIGN, MATERIAL ONLY assembly which shall be payment in full for the material and work described herein.

STORAGE OF DYNAMIC MESSAGE SIGN

Description. The dynamic message sign fabrication contractor will be responsible for storing and protecting all fabricated materials, including signs and associated cabinets, and delivering the fabricated materials to the jobsite in accordance with the sign delivery schedule as shown under the **Date of Completion** section. All storage costs incurred by the fabricaton contractor during the Contract period and up to 45 calendar days after the specified contract completion date shall be borne by the fabrication contractor, and shall be included in the price bid for the fabrication items. Any such storage costs incurred by the fabrication contractor beyond the 45-day period shall be paid under this item.

Payment shall only be made for completed signs. Signs which have their delivery dates pushed back by advance notice from the sign installation contractor and which have not been fabricated by the manufacturer shall not receive storage payment.

Method of Measurement. The storage and care of the dynamic message sign and associated cabinets, incurred by the fabrication contractor beyond the 45-day period, will be measured per sign per calendar day.

Basis of Payment. The cost for storage, protection and care of completed dynamic message signs and associated cabinets, incurred by the fabrication contractor beyond the 45-day period, will be paid for at the contract unit price per sign per calendar day for STORAGE OF DYNAMIC MESSAGE SIGN.

UNINTERRUPTIBLE POWER SUPPLY UPGRADE

Description. This specification defines the electrical and mechanical characteristics and requirements for a continuous-duty three-phase, solid-state, uninterruptible power supply (UPS) system. The UPS shall provide high-quality AC power for sensitive electronic equipment loads. The UPS provided shall be a Liebert Npower or approved equivalent. The UPS and all appurtenances shall be delivered to a site specified herein. Included in the bid shall be all delivery and factory post installation inspection and verification charges.

The layouts of the various items of equipment, accessories, specialties, and wiring on the Drawings are diagrammatic, unless specifically dimensioned, and do not necessarily indicate every box, conduit, switch, wiring device or similar items required for a complete installation.

Materials. All materials of the UPS shall be new, of current manufacture, high grade and free from all defects and shall not have been in prior service except as required during factory testing.

General. The maximum working voltage, current, and di/dt of all solid-state power components and electronic devices shall not exceed 75% of the ratings established by their manufacturer. The operating temperature of solid-state component sub-assembly shall not be greater than 75% of their ratings. Electrolytic capacitors shall be computer grade and be operated at no more than 95% of their voltage rating at the maximum rectifier charging voltage.

UPS module. The UPS module shall comply with the following:

Voltage. Input/output voltage specifications of the UPS shall be:

- Rectifier Input: 208 volts, three-phase, 4-wire-plus-ground.
- Output: 208 volts, three-phase, 4-wire-plus-ground.

Output Load Capacity. Specified output load capacity of the UPS shall be 40 KVA at 0.8 lagging power factor.

The UPS shall be designed to operate as an on-line, double-conversion, reverse-transfer system in the following modes:

Normal - The critical AC load is continuously supplied by the UPS inverter. The rectifier/charger derives power from a utility AC source and supplies DC power to the inverter while simultaneously float-charging a power reserve battery.

Emergency - Upon failure of utility AC power, the critical AC load is supplied by the inverter, which without any switching, obtains power from the battery. There shall be no interruption in power to the critical load upon failure or restoration of the utility AC source.

Recharge - Upon restoration of utility AC power, after a utility AC power outage, the rectifier/charger shall automatically restart, walk-in, and gradually assume the inverter and battery recharge loads.

Bypass - If the UPS must be taken out of service for maintenance or repair, or should the inverter overload capacity be exceeded, the static transfer switch shall perform a reverse transfer of the load from the inverter to the bypass source with no interruption in power to the critical AC load.

The AC input to the UPS shall comply with the following:

Voltage Configuration for Standard Units: three-phase, 4 -wire plus ground.
Voltage Range: +10%, -20% of nominal.
Frequency: Nominal frequency +/-5%.
Power Factor: Up to 0.96 lagging at nominal input voltage and full rated UPS output load with optional input filter. Minimum 0.80 lagging without optional input filter.
Inrush current: 800% of full load current maximum.
Current Limit: 115% of nominal AC input current maximum. 100% of nominal for optional generator operation.
Input Current Walk-In: 20 seconds to full rated input current maximum. Field selectable 5 through 20 seconds.
Current Distortion: 10% reflected THD maximum at full load when fitted with optional input filter. 30% THD maximum at full load without optional input filter.

Surge Protection: Sustains input surges without damage per criteria listed in ANSI C62.41 Category A and B.

The AC output/UPS inverter shall comply with the following:

Voltage Configuration: three-phase, 4-wire plus ground
Voltage Regulation:

- 0.5% three-phase RMS average for a balanced three-phase load for the combined variation effects of input voltage, connected load, battery voltage, ambient temperature, and load power factor.
- 1.0% three-phase RMS average for a 100% unbalanced load for the combined variation effects of input voltage, connected load, battery voltage, ambient temperature, and load power factor.

Frequency: Nominal frequency +/-0.1%.
Frequency Slew Rate: 1.0 Hertz per second maximum. Field selectable from 0.1 to 1.0 Hz per second.
Phase Displacement:

- 0.5 degree for balanced load,
- degrees for 100% unbalanced load.

Bypass Line Sync Range:

- 0.5 Hertz, Field selectable $\pm$ 0.5 to 5.0 Hz.

Voltage Distortion:

- 1% total harmonic distortion (THD) for linear loads.
- 2.5% THD for 100% nonlinear loads (3:1 crest factor) without kVA/kW derating.

Load Power Factor Range: 1.0 to 0.7 lagging without derating.
Output Power Rating: Rated kVA at 0.8 lagging power factor.
Overload Capability:

- 125% for ten minutes (without bypass source).
- 150% for one minute (without bypass source).
- 200% for 10 cycles, pulse paralleling with the static switch.

Inverter Output Voltage Adjustment: +/-5% manual adjustment.
Voltage Transient Response:

- 100% load step: $\pm$ 2.5%.
- Loss or return of AC input power: $\pm$ 1.0%.
- Manual transfer of 100% load: $\pm$ 3.0%.

Transient Recovery Time: to within 1% of output voltage within one cycle.
N. Voltage Unbalance: 100% unbalanced load: $\pm$1%.
Fault Clearing: Sub-cycle current of at least 300%.

The UPS shall be able to withstand the following environmental conditions without damage or degradation of operating characteristics:

Operating Ambient Temperature: UPS Module: 32°F to 104°F (0°C to 40°C), Battery: 77 +/-9°F (25 +/-5°C).
Storage/Transport Ambient Temperature: UPS Module: -4°F to 158°F (-20°C to 70°C).

Battery: -4°F to 92°F (-20°C to 33°C)
Relative Humidity: 0 to 95%, non-condensing.
Altitude: Operating: to 6,600 ft. (2,000 meters) above Mean Sea Level. Derated for higher altitude applications. Storage/Transport: to 40,000 ft. (12,200 meters) above Mean Sea Level.
Audible Noise: Noise generated by the UPS under any condition of normal operation shall not exceed 65 dBA measured 1 meter from surface of the UPS.

Separate Battery Room. The batteries used in the separate battery room shall comply with the following:

Battery Cells: Flooded Battery Type, Manufacturer C&D Technologies XT4LC-13 or equal with Seismic Zone 1 mounting racks. Battery quantity and rack data shall be as outlined on plans.
Reserve Time: 8 hours at full load, 0.8 power factor, with ambient temperature between 20° and 30°C.
Recharge Time: to 95% capacity within ten (10) times discharge time.

Input Transformer. The input transformer shall be factory installed inside the UPS module cabinet without increasing the standard footprint.

Rectifier/Charger. The term rectifier/charger shall denote the solid-state equipment and controls necessary to convert incoming AC power to regulated DC power for input to the inverter and for battery charging. The rectifier/charger shall be a phase-controlled, solid-state SCR type with constant voltage/current limiting control circuitry.

The rectifier/charger unit shall be provided with AC input current limiting whereby the maximum input current shall be limited to 115% of the full input current rating. The rectifier/charger shall operate at a reduced current limit mode whenever the critical load is powered from the UPS static bypass circuit such that the maximum UPS input current will not exceed 115% of full load input current. In addition, the rectifier/charger shall have a separate battery current limit, adjustable from 0 to 15% of the full load input current. An optional second circuit shall limit the battery recharge current to zero when activated by a customer-supplied contact closure to signal a customer function such as generator operation.

The rectifier/charger shall contain a timed walk-in circuit that causes the unit to gradually assume the load over a 20-second time interval after input voltage is applied. Walk-in time shall be field selectable for 5 through 20 seconds.

Power semiconductors in the rectifier/charger shall be fused with fast-acting fuses, so that loss of any one power semiconductor shall not cause cascading failures.

The rectifier/charger shall have an output filter to minimize ripple voltage into the battery. Under no conditions shall ripple voltage into the battery exceed 1% RMS. The filter shall be adequate to insure that the DC output of the rectifier/charger will meet the input requirements of the inverter. The inverter shall be able to operate from the rectifier/charger with the battery disconnected.

Upon restoration of utility AC power, after a utility AC power outage and prior to a UPS automatic end-of-discharge shutdown, the rectifier/charger shall automatically restart, walk-in, and gradually assume the inverter and battery recharge loads.

In addition to supplying power for the inverter load, the rectifier/charger shall be capable of producing battery charging current sufficient to replace 95% of the battery discharge power within ten (10) times the discharge time. After the battery is recharged, the rectifier/charger shall maintain the battery at full charge until the next emergency operation.

There shall be DC over-voltage protection so that if the DC voltage rises to the pre-set limit, the UPS is to shut down automatically and initiate an uninterrupted load transfer to the static bypass line.

Inverter. The term inverter shall denote the solid-state equipment and controls to convert DC power from the rectifier/charger or battery to regulated AC power for supporting the critical load. The inverter shall use Insulated Gate Bipolar Transistors (IGBTs) in a phase-controlled, pulse width modulated (PWM) design capable of providing the specified AC output.

The inverter shall be capable of supplying current and voltage for overloads exceeding 100% and up to 200% of full load current. A status indicator and audible alarm shall indicate overload operation. The UPS shall transfer the load to bypass when overload capacity is exceeded.

The inverter shall be capable of supplying an overload current of 150% of its full-load rating for one minute. For greater currents or longer time duration, the inverter shall have electronic current-limiting protection to prevent damage to components. The critical load will be transferred to the static bypass automatically and uninterrupted. The inverter shall be self-protecting against any magnitude of connected output overload. Inverter control logic shall sense and disconnect the inverter from the critical AC load without the requirement to clear protective fuses.

The output voltage shall be maintained to within +/- 2.5% with a 0-to-100% step load change or a 100%-to-0 step load change. The output voltage shall recover to within 1% of nominal voltage within 1 cycle.

For linear loads, the output voltage total harmonic distortion (THD) shall not be greater than 1%. For 100% rated load of 3:1 crest factor nonlinear loads, the output voltage total harmonic distortion shall not be greater than 2.5%. The output rating is not to be derated in kVA nor kW due to the 100% nonlinear load with 3:1 crest factor.

A dry-type power transformer shall be provided for the inverter AC output. It shall have copper wiring exclusively. The transformers hottest spot winding temperature shall not exceed the temperature limit of the transformer insulation class of material when operating at full load at maximum ambient temperature.

Electronic controls shall be provided to regulate each phase so that an unbalanced loading will not cause the output voltage to go outside the specified voltage unbalance or phase displacement. With 100% load on one phase and 0% load on the other 2 phases or 100% load on 2 phases and 0% load on the other phase, the voltage balance is to be within 1% and the phase displacement is to be 120 degrees within +/- 1 degree.

Power semiconductors in the inverter unit shall be fused with fast-acting fuses, so that loss of any one power semiconductor will not cause cascading failures.

For rapid removal of the inverter from the critical load, the inverter control electronics shall instantaneously turn off the inverter transistors. Simultaneously, the static transfer switch shall be turned on to maintain continuous power to the critical load.

The inverter shall be protected by the following disconnect levels:

DC Overvoltage Shutdown
DC Undervoltage Warning (Low Battery Reserve), user adjustable from 1 to 99 minutes
DC Undervoltage Shutdown (End of Discharge)

To prevent battery damage from overdischarging, the UPS control logic shall automatically raise the shutdown voltage set point as discharge time increases beyond fifteen (15) minutes.

The inverter shall use a manual control to adjust the output voltage from +/- 5% of the nominal value.

The output frequency of the inverter shall be controlled by an oscillator. The oscillator shall be temperature compensated and hold the inverter output frequency to +/- 0.1% for steady state and transient conditions. Drift shall not exceed 0.1% during a 24-hour period. Total frequency deviation, including short time fluctuations and drift, shall not exceed 0.1% from the rated frequency.

Static Transfer Switch. A static transfer switch and bypass circuit shall be provided as an integral part of the UPS. The static switch shall be a naturally commutated high-speed static (SCR-type) device rated to conduct full load current continuously. The switch shall have an overload rating of 110% rated load continuously, 200% rated load for five seconds. The static transfer switch shall also have fault-clearing capabilities of 1100 amperes for 1 second, 3000 amperes for 10 cycles, and 6000 amperes peak for the first half cycle.

The static transfer switch control logic shall contain an automatic transfer control circuit that senses the status of the inverter logic signals, and operating and alarm conditions. This control circuit shall provide an uninterrupted transfer of the load to an alternate bypass source, without exceeding the transient limits specified herein, when an overload or malfunction occurs within the UPS, or for bypassing the UPS for maintenance.

The transfer control logic shall automatically turn on the static transfer switch, transferring the critical AC load to the bypass source, after the transfer logic senses any of the following conditions:

Inverter overload capacity exceeded
Critical AC load overvoltage or undervoltage
Battery protection period expired
UPS fault condition
The transfer control logic shall inhibit an automatic transfer of the critical load to the bypass source if any of the following conditions are present:

- Inverter/bypass voltage difference exceeding preset limits
- Bypass frequency out of limits
- Bypass out-of-synchronization range with inverter output

Retransfer of the critical AC load from the bypass source to the inverter output shall be automatically initiated unless inhibited by manual control. The transfer control logic shall inhibit an automatic retransfer of the critical load to the inverter if one of the following conditions exists:

- Bypass out of synchronization range with inverter output
- Inverter/bypass voltage difference exceeding preset limits
- Overload condition exists in excess of inverter full load rating
- UPS fault condition present

Maintenance Bypass Switch. A manually operated maintenance bypass switch shall be mounted in a separate adjacent cabinet and directly connect the critical load to the bypass AC input power source, bypassing the rectifier/charger, inverter, and static transfer switch. No wiring shall pass through the UPS cabinet.

All energized terminals shall be shielded to ensure that maintenance personnel do not inadvertently come in contact with energized parts or terminals. A means to de-energize the static switch shall be provided when the UPS is in the maintenance bypass mode of operation.

With the critical load powered from the maintenance bypass circuit, it shall be possible to check out the operation of the rectifier/charger, inverter, battery, and static transfer switch. When the application calls for the Maintenance Bypass Switch to be bolted to the UPS cabinet, the interconnecting cables are to be provided, precut and prelugged.

The temporary battery power pack shall include sealed, lead-acid valve regulated battery cells housed in a separate cabinet that matches the UPS cabinet styling to form an integral system line-up. Battery cells shall be mounted on slide-out trays for ease of maintenance. A battery disconnect circuit breaker with undervoltage release (UVR) shall be included for isolation of the battery pack from the UPS module. The UPS shall automatically be disconnected from the battery by opening the breaker when the battery reaches the minimum discharge voltage level. Casters and leveling feet shall also be provided with the battery power pack cabinet for ease of installation.

Display and Controls. The UPS shall be provided with a microprocessor based unit status display and controls section designed for convenient and reliable user operation. A graphical display shall be used to show a single-line diagram of the UPS, and shall be provided as part of the monitoring and controls sections of the UPS. All of the operator controls and monitors shall be located on the front of the UPS cabinet. The monitoring functions such as metering, status and alarms shall be displayed on the graphical LCD display. Additional features of the monitoring system shall include:

Menu-driven display with pushbutton navigation
Real time clock (time and date)
Alarm history with time and date stamp
Battery back-up memory

The following parameters shall be displayed:

Input AC voltage line-to-line
Input AC current for each phase
Input frequency
Battery voltage
Battery charge/discharge current
Output AC voltage line-to-line and line-to-neutral for each phase
Output AC current for each phase
Output frequency
Percent of rated load being supplied by the UPS
Battery time left during battery operation

The following alarm messages shall be displayed:

Input power out of tolerance
Input phase rotation incorrect
Incorrect input frequency
Charger in reduced current mode
Battery charger problem
Battery failed test
Low battery warning (adjustable 1 to 99 minutes)
Low battery shutdown
DC bus overvoltage
Bypass frequency out of range
Load transferred to bypass
Excessive retransfers attempted
Static switch failure
UPS output not synchronized to bypass power
Input power single phased
Input voltage sensor failed
Inverter leg overcurrent in X-phase
Output undervoltage
Output overvoltage
Output overcurrent
System output overloaded
Load transferred to bypass due to overload
Overload shutdown
Control error
Critical power supply failure
Load transferred due to internal protection
External shutdown (remote EPO activated)
Fan failure

Overtemperature shutdown impending
Overtemperature shutdown

An audible alarm shall be provided and activated by any of the above alarm conditions.

The following UPS status messages shall be displayed:

Normal operation
Load on maintenance bypass
Load on UPS
Load on static bypass
System shutdown
UPS on battery

UPS start-up, shutdown, and maintenance bypass operations shall be accomplished through the front-panel pushbutton controls. Menu-driven user prompts shall be provided to guide the operator through system operation without the use of additional manuals. Pushbuttons shall be provided to display the status of the UPS and to test and reset visual and audible alarms. A mimic screen shall be available on the LCD screen to depict a single-line diagram of the UPS, with switch positions and power flow.

The UPS shall be provided with a menu-driven On-Line Battery Test feature. The test shall ensure the capability of the battery to supply power to the inverter while the load is supplied power in the normal mode. If the battery fails the test, the system shall automatically do the following:

Maintain the load through the UPS
Display a warning message
Sound an audible alarm
The battery test feature shall have the following user selectable options:
DC bus voltage threshold (pass/fail value)
Interval between tests (2 to 9 weeks)
Date and time of initial test
Enable/disable test

Input Filter. The rectifier/charger shall include an input filter to reduce reflected input current distortion to 10% THD at full load with nominal input voltage. Another benefit of the input filter shall be to maintain the input power factor at 0.90-0.96 lagging minimum from full load to half load with nominal input voltage.

External Maintenance Bypass Cabinet. A matching external maintenance bypass cabinet shall be provided to enable the UPS module to be completely isolated from the electrical system while the critical load is powered through the external maintenance bypass line. This optional cabinet shall provide make-before-break operation for transfers to and from the external maintenance bypass line with a single rotary switch. The following components shall be standard: single rotary switch with auxiliary contacts, inter-cabinet wiring, casters, and leveling feet. This matching cabinet shall bolt to the side of the UPS module with a barrier shield to separate the two cabinets. Only front access shall be required for installation and service.

Optional Remote Status Panel. A remote status panel shall be provided and shall include the following:

Load on UPS LED
Load On Bypass LED
Battery Discharge LED
Low Battery Reserve LED
UPS Alarm Condition LED
New Alarm Condition LED (for a second UPS alarm condition)
Audible Alarm with Reset pushbutton
Lamp Test/Reset pushbutton

The remote status panel shall be provided in a NEMA Type 1 enclosure for wall mounting.

Panelboards. Panelboards must be circuit breaker or fusible switch type, of dead front construction, with voltage characteristics, bus size, main lugs only or main protective device, and number and size of branch circuits indicated on the Drawings.

Panelboards must be recessed or surface mounted as indicated on the Drawings, enclosed in a NEMA 1 gauge steel cabinet with steel trim, and door with continuous stainless steel piano concealed hinges and cylinder type locks.

Panelboards must be fully rated, labeled with their UL short circuit rating, and must have a service entrance label when required by the application. Series integrated ratings are not acceptable.

Circuit breakers must be of the industrial, bolt on type. Number of poles and rating as indicated on the Drawings.

Panelboards must be designed for sequence phase connection of branch circuit devices to allow for the complete flexibility of circuit arrangement to evenly balanced the electrical load on each phase.

The manufacturers shall be Berthold Electric, Illinois Switchboard, Siemens/ITE, Cutler Hammer, Square D, or approved equal.

Circuit breakers must be of the bolt on type, industrial heavy duty, quick make, quick break, single or multi pole of the type specified herein and indicated on the Drawings.

Circuit breakers for 120 volt and 208 volt service must be 240 volt rated, must be of the "bolt on" type and must have an interrupting rating of 10,000 amperes at 240 VAC. Trip settings must be as indicated on the Drawings.

Circuit breakers must be thermal magnetic type with common handle for a multiple pole circuit breakers. Circuit breakers must be a minimum 100 ampere frame and through 100 ampere trip sizes must take up the same pole spacing. Circuit breakers must be UL listed as type SWD for lighting circuits.

Molded case circuit breakers must provide circuit overprotection with inverse time delay and instantaneous tripping characteristics.

Circuit breakers must be operated by a toggle type handle and must have a quick make, quick break over center switching n mechanism that is mechanically trip free. Automatic tripping of the breaker must be clearly indicated by the handle position.

Circuit breakers must be provided with copper bus and copper lugs to accommodate oversized cable due to voltage drop.

Contacts must be non welding silver alloy. Arc extinction must be accomplished by means of DE ION arc chutes.

Each panelboard breaker must be connected to the main bus with copper bus bar. Insulated cable is not acceptable.

Interiors must be completely factory assembled with bolt on devices. Interior must be designed so that circuit breakers can be added or replaced without disturbing adjacent units and without removing main bus connectors, and must be designed so that circuits may be changed without additional machining, drilling, or tapping. Spaces for future breakers must have bussing provided, of required capacity, for the maximum device that can be fitted into them.

Bus must be hard drawn electrolytic copper, having 98% conductivity and sized on a basis of 1000 amperes, maximum, per square inch of cross sectional area.

Neutrals, where called for, must be grouped and arranged on a common bus and each terminal must be stamped to indicate the number of the breaker with which it is associated. Neutral busing must have a suitable compression lug for each feeder requiring a connection.

Each panelboard must be furnished with a full length ground bus drilled and tapped to accommodate a ground cable for each circuit breaker. Cable terminals must be provided.

Basic Electrical Materials and Methods. Contractor shall distributed power by 208Y/120 volts, 3 phase, 4 wire +ground via conduits as indicated.

Provide branch circuit conduit and wire required to serve circuit numbers as indicated on the Panelboard Schedules to the designated equipment.

Provide galvanized rigid steel (GRS) conduit and fittings in all areas of this Project except for flexible conduit connections to equipment.

Provide complete system of copper AC wire and cable conductors.

Factory color code secondary distribution feeders and branch circuit wiring No. 8 AWG and smaller as follows.

208/120 Volts	
A	Black
B	Red
C	Blue
Neutral	White
Ground	Green

Code with colors other than those used for secondary distribution.

Colored pressure sensitive plastic tapes may be used to color code wire in sizes No. 6 AWG and larger. Tape must be 3/4" wide and in specified colors.

Wire and cable for branch power circuits shall be type "THWN AWG" copper conductors of not less than 98% conductivity with 600 volt insulation. 120 volt branch circuits extending more than 70 feet from the associated panel must be not less than No. 10 AWG to the first fixture or other current consuming outlet. Branch power circuit wiring must be suitable for 60 degrees C operating temperature, of types appropriate for dry and wet locations. Use only solid conductor wire for sizes No. 12 and No. 10, and only stranded conductor wire for sizes No. 8 and larger.

The cable manufacturers shall be Carol, Okonite, Parelli, Rome, Triangle, or approved equal.

Drywall Partition. This item includes drywall partition framing, gypsum board, taped and sanded joint treatment, and Gypsum board accessories and fasteners. This specification also includes surface preparation and field application of paints and finishes for interior surfaces, and interior painting and finishing schedule.

References for Gypsum board include:

American Society for Testing and Materials (ASTM):

1. ASTM C36 - Gypsum Wallboard.
2. ASTM C475 - Joint Treatment Materials for Gypsum Wallboard Construction.
3. ASTM C514 - Nails for the Application of Gypsum Wallboard.
4. ASTM C840 - Application and Finishing of Gypsum Board.
5. ASTM C1002 - Steel Drill Screws for the Application of Gypsum Board.
6. ASTM E90 - Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
7. ASTM E119 - Fire Tests of Building Construction and Materials.

Gypsum Association (GA):

1. GA 201 - Gypsum Board for Walls and Ceilings.
2. GA 216 - Recommended Specifications for the Application and Finishing of Gypsum Board.
3. GA 600 - Fire Resistance Design Manual.

Fire Rated Gypsum Board: ASTM C36; fire resistive type, UL rated; 5/8-inch thick, tapered edge.

Accessories:

- Acoustical Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board, as recommended by wallboard manufacturer.
- Corner Beads: Metal, 1-1/4 x 1-1/4
- Edge Trim: GA 201 and GA 216; Type LC L LK U exposed reveal bead.
- Joint Materials: ASTM C475; GA 201 and GA 216; reinforcing tape, joint compound, adhesive, and water.
- Fasteners for Metal Stud Application

Quality Assurance: Perform Work in accordance with ASTM C840.

References for painting include:

American Society for Testing and Materials (ASTM):

ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.

Manufacturers. Subject to compliance with project requirements, manufacturer's offering specified items, which may be incorporated in the work, include the following:

Benjamin Moore and Company, Montvale, NJ (201) 573-9600.
Pittsburgh Paints, Pittsburgh, PA (800) 441-9695.
Sherwin-Williams Company, Cleveland, OH (800) 321-8194.

Product options and substitutions. Substitutions: Permitted.

Paints, Primers, Accessories.

Paints.

Manufacturer’s “Best Grade” for each type specified.
Ready mixed; pigments fully ground maintaining a soft paste consistency, capable of readily and uniformly dispersing to a complete homogeneous mixture.
Providing good flowing and brushing properties and be capable of drying or curing free of streaks or sags.

Primers and under coaters. Manufactured by same manufacturer as finish coat materials.

Paint Accessory Materials. Linseed oil, shellac, turpentine and other materials not specifically indicated herein but required to achieve the finishes specified of high quality and approved manufacturer.

Interior Paint Systems. Final Paint Color Selection shall be Department specified. Furnish manufacturer color sample cards to Department for color selection.

Quality Assurance.

Applicator Qualifications. Company specializing in performing Work of this Section with minimum five years documented experience.

Regulatory Requirements.

Surface Burning Characteristics in Accordance with ASTM E-84 for Class I or A finish:
Flame Spread (Non-Combustible Surfaces): Less than 25.
Smoke Density (Non-Combustible Surfaces): Less than 450.
Provide paint and coating materials that conform to Federal, State, and Local restrictions for Volatile Organic Compounds (VOC) content.

Delivery, Storage, and Handling. Transport, handle, store, and protect products. Deliver paint materials in sealed original labeled containers, bearing manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and/or reducing. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's published instructions. Prevent fire hazards and spontaneous combustion.

Interior Nonload-Bearing Partition Framing. ASTM A 653 and ASTM C 645; galvanized sheet steel, channel shaped, punched for utility access, depth as indicated on Drawings, gages as indicated below unless indicated on Drawings.

358ST22 - 3-5/8 Inch Studs - Unbraced Length 17 Feet or Less: Minimum 22 gage. Limiting heights are for 5/8 inch thick gypsum board panels on each side of partition and 5 pounds per square foot uniform load perpendicular to partition.

Partition Floor Tracks and Runners. ASTM A 653 and ASTM C 645; galvanized sheet steel, channel shaped, same depth and gage as studs, tight fit; solid web.
22 Gage Studs: CR22 x stud size.

Wall Furring and Partition Bracing. ASTM A 653 and ASTM C 645; galvanized sheet steel.
Studs. ST22 - 2-1/2 inch deep, 22 gage.
Hat-Shaped Channels (as needed): 7/8 inch deep x 1-1/2 inch wide, 25 gage.
Clip Angles: 2 inches x 2 inches x 16 gage x 1/4 inch less than stud width.

Partition Framing Fasteners: Corrosion-resistant self-drilling self-tapping steel screws.
22 Gage Framing: ASTM C 1002; 3/8 inch Type S pan head.

Partition Floor Track Anchorage Device: Low velocity powder-actuated drive pins; minimum 0.140 inch shank diameter x 1-1/2 inch shank length with 7/8 inch diameter washer.
DX 451 System using X-DNI Pins with R23 washers, by Hilti, Tulsa, OK. (800) 879-8000.

Ramset/Red Head System using 4700SD Pins, by ITW Ramset/Redhead, Wood Dale, IL (708) 350-1858.

Wood Blocking Attached to Partition Framing:
PS 20; S4S. Maximum of 19 percent moisture content, surfaced dry, No. 2 any species graded under WWPA grading rules or No. 3 Grade Southern Pine graded under SPIB grading rules. Full sized, sound lumber without splits, warps, wane, or loose knots.

Security Mesh: 1/2 inch #16 galvanized carbon steel flattened expanded metal sheets or 22ga. sheet metal.

Work shall reference the following standards:

- ASTM A 653 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- ASTM C 645 - Specification for Non-Structural Steel Framing Members.
- ASTM C 754 - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- ASTM C 954 - Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 inches to 0.112 inches in Thickness.
- PS 20 - American Softwood Lumber Standard.
- SPIB: Grading Rules.
- WWPA: Western Lumber Grading Rules.

Doors and Hardware. Door and hardware shall be provided to allow access to and from the new Storage Room.

New door and frame shall match the existing Battery Room door in size, material, finish and hardware, unless noted otherwise by the Department. The new door shall swing in the direction shown on the contract drawing. The door shall have a keyed entrance, with the required key matching that of the existing Battery and UPS Rooms.

Fabricate unit rigid, neat, and free from warp or buckle. Provide welded frames. Weld exposed joints continuously; grind, dress, and make smooth, flush and invisible. Reinforce unit to receive surface applied finish hardware. Prepare frame for silencers. Provide three single rubber silencers. Primer: Air-dried. Door manufacturer shall be company specializing in manufacturing similar type products with minimum 5 years documented experience. Installer shall be company specializing in performing similar type work with minimum 5 years documented experience. Installed Door Assembly shall conform to NFPA 80 for fire rated minute label as per existing Battery and UPS Room door labels. Transport, handle, store, and protect door and frame with resilient packaging. Break seal on site to permit ventilation.

Hardware shall conform to NFPA Standard No. 80, 101 and Americans With Disabilities Act (ADA). Provide keying and master keying and higher master keying, if required, to match existing Battery and UPS Room Locks such that the same key open all three doors. Include 3 nickel silver keys for each lock, and 3 of each master key. Lock manufacturer shall furnish a

keyway to match Department's existing keyway. Keyway used shall require Department's authorization letter to accompany each order for keys and key blanks. All keys shall be stamped "Do Not Duplicate" on plain bows. Locks shall be installed for building security (during the normal period of construction) with temporary construction keys; shall be individually keyed as required and subject to a single master key. At completion of building, permanent keys shall be shipped directly to Department's appointed representative. Proof of delivery shall be submitted to Engineer prior to final review of Project.

Finish Hardware Supplier Shall Be member of National Builders Hardware Association (NBHA); provide services of regular member of American Society of Architectural Hardware Consultants (ASAHC). Be responsible for suitability of all finish hardware; verify that items specified will function in designated locations. Be responsible for refinements, materials and specified thickness. Package and label each item of hardware separately. Each package shall contain appropriate fastenings, instructions and installation templates. Should marking on any item become separated from item after delivery, return item to supplier for remarking before attempting to install it.

Battery Circuit Breaker. A battery circuit breaker shall be provided to isolate the battery from the UPS. This breaker shall have an undervoltage release (UVR) and auxiliary contacts, and shall be in a separate wall mounted NEMA-1 enclosure. The battery breaker provides a manual disconnecting means, short circuit protection, and overcurrent protection for the battery system. When opened, there shall be no battery voltage in the UPS enclosure. The UPS shall be automatically disconnected from the battery by opening the breaker when the battery reaches the minimum discharge voltage level.

Internal Modem/Dial Out Pager. The UPS shall come with an internal modem capable of dialing out from the UPS to notify up to two remote computers, terminals, PC's, or pocket pagers when important events occur. The modem will also be capable of accepting incoming calls, with the appropriate security, and connecting to a remote terminal, computer or PC, to perform all those functions normally available on the front panel including viewing monitoring screens. The pocket pager interface shall automatically call up to two (2) designated state employees on the Department's leased alpha-numeric paging system. Interface requirements can be obtained from "Metrocall" paging service at 630-376-1610.

CONSTRUCTION REQUIREMENTS

Standards. The UPS shall be designed in accordance with the applicable sections of the current revision of the following documents. Where a conflict arises between these documents and statements made herein, the statements in this specification shall govern.

- ANSI C62.41 (IEEE 587)
- ASME
- CSA 22.2, No. 107.1
- FCC Part 15, Class A
- ISO 9001
- National Electrical Code (NFPA-70)

- NEMA PE-1
- OSHA
- UL Standard 1778
- The UPS shall be ETL listed per UL Standard 1778 Uninterruptible Power Supplies, and shall be CSA Certified.

Proposal Submittals. Submittals with the proposal shall include:

- System configuration with single-line diagrams.
- Functional relationship of equipment including weights, dimensions, and heat dissipation.
- Descriptions of equipment to be furnished, including deviations from these specifications.
- Size and weight of shipping units to be handled by installing contractor.
- Detailed layouts of customer power and control connections.
- Detailed installation drawings including all terminal locations.

UPS Delivery Submittals. Submittals upon UPS delivery shall include a complete set of submittal drawings and one (1) instruction manual that shall include a functional description of the equipment with block diagrams, safety precautions, instructions, step-by-step operating procedures and routine maintenance guidelines, including illustrations.

Installation. Carefully handle wires and cables during installation. Make joints and splices in an approved manner, and equivalent electrically and mechanically to the conductor itself.

Base conduit fill in accordance with National Electrical Code requirements. All home runs between panel and first junction box from panel must contain not more than nine (9) conductors including equipment grounding wire.

Branch circuit and control wiring must be not less than #12 AWG wire unless noted otherwise.

Terminate stranded control cables in #12 AWG size and smaller into solderless lugs, then connect lug to terminal part.

Neatly group circuits in panelboards and tie with seine twine, or nylon wire ties.

Do not pull splices of any kind into any raceway. Make splices and taps in a junction box, pullbox or other accessible enclosure.

Warranty. The UPS manufacturer shall warrant the UPS module against defects in materials and workmanship for 12 months after initial start-up or 18 months after ship date, whichever period expires first.

The battery manufacturer's standard warranty shall be passed through to the end user.

Manufacturer Qualifications. A minimum of twenty year's experience in the design, manufacture, and testing of solid-state UPS systems is required. The system shall be designed and manufactured according to world class quality standards. The manufacturer shall be ISO 9001 certified.

Factory Testing. Before shipment, the manufacturer shall fully and completely test the system to assure compliance with the specification.

Wiring. Wiring practices, materials and coding shall be in accordance with the requirements of the National Electrical Code (NFPA 70). All bolted connections of bus bars, lugs, and cables shall be in accordance with requirements of the National Electrical Code and other applicable standards. All electrical power connections are to be torqued to the required value and marked with a visual indicator.

Provision shall be made for power cables to enter or leave from the top or bottom of the UPS cabinet.

Construction and Mounting. The UPS unit, comprised of input transformer, rectifier/charger with input filter, inverter, static transfer switch, and output transformer, shall be housed in a single free-standing NEMA type 1 enclosure. Cabinet doors/covers shall require a tool for gaining access. Casters and stops shall be provided for ease of installation. Front access only shall be required for expedient servicing, adjustments, and installation. The UPS cabinet shall be structurally adequate and have provisions for hoisting, jacking, and forklift handling. The maintenance bypass switch shall be mounted separately in its own adjacent cabinet with input and output wiring independent of the UPS cabinet.

The UPS cabinet shall be cleaned, primed, and painted with the manufacturer's standard color. The UPS shall be constructed of replaceable subassemblies. Printed circuit assemblies shall be plug connections. Like assemblies and like components shall be interchangeable.

Cooling. Cooling of the UPS shall be by forced air. Low-velocity fans shall be used to minimize audible noise output. Fan power shall be provided by the UPS output.

The thermal design, along with all thermal and ambient sensors, shall be coordinated with the protective devices before excessive component or internal cabinet temperatures are exceeded.

Grounding. The AC output neutral shall be electrically isolated from the UPS chassis. The UPS chassis shall have an equipment ground terminal. Provisions for local bonding shall be provided.

Field Quality Control. The following inspections and test procedures shall be performed by factory-trained field service personnel during the UPS startup. Upon completion of the inspections and any necessary changes, the service personnel shall provide "Factory Certification" that the complete installation is properly installed and compatible with it's intended purpose.

Visual inspections shall include:

- Inspect equipment for signs of damage
- Verify installation per drawings
- Inspect cabinets for foreign objects
- Verify neutral and ground conductors are properly sized and configured
- Inspect battery cases

- Inspect battery for proper polarity
- Verify all printed circuit boards are configured properly

Mechanical inspections shall include:

- Check all control wiring connections for tightness
- Check all power wiring connections for tightness
- Check all terminal screws, nuts, and/or spade lugs for tightness

Electrical inspection shall include:

- Check all fuses for continuity
- Confirm input voltage and phase rotation is correct
- Verify control transformer connections are correct for voltages being used
- Assure connection and voltage of the battery string(s)

Service Personnel. The UPS manufacturer shall directly employ a nationwide service organization, consisting of factory trained field service personnel dedicated to the start-up, maintenance, and repair of UPS and power equipment. The organization shall consist of regional and local offices.

The manufacturer shall provide a fully automated national dispatch center to coordinate field service personnel schedules. One toll-free number shall reach a qualified support person 24 hours/day, 7 days/week, and 365 days/year. If emergency service is required, response time shall be 20 minutes or less.

An automated procedure shall be in place to insure that the manufacturer is dedicating the appropriate technical support resources to match escalating customer needs.

Replacement Parts Stocking. Parts shall be available through an extensive network to ensure around-the-clock parts availability throughout the country.

Recommended spare parts shall be fully stocked by local field service personnel with back-up available from national parts center and the manufacturing location. The national parts center Customer Support Parts Coordinators shall be on-call 24 hours/day, 7 days/week, and 365 days/year for immediate parts availability. Parts from the national parts center shall be shipped within 4 hours on the next available flight out and delivered to the customer's site within 24 hours.

UPS Maintenance Training. Maintenance training courses for customer employees shall be available by the UPS manufacturer. This training is in addition to the basic operator training conducted as a part of the system start-up.

The training course shall cover UPS theory, location of subassemblies, safety, battery considerations and UPS operational procedures. The course shall include AC to DC conversion and DC to AC inversion techniques as well as control, metering, and feedback circuits to the Printed Circuit Board (PCB) level. Troubleshooting and fault isolation using alarm information and internal self-diagnostics should be stressed.

Maintenance Contracts. A complete offering of preventive and full service maintenance contracts for both the UPS system and battery system shall be available. An extended warranty and preventive maintenance package shall be available. Warranty and preventive maintenance service shall be performed by factory-trained service personnel.

Delivery. All equipment, wiring and appurtenances shall be delivered to the inside loading dock at:

Illinois Department of Transportation – District 1
201 West Center Court
Schaumburg, IL. 60196

All delivery and unloading costs shall be included in the bid.

Panelboards. Install equipment in strict accordance with the approved shop drawing and equipment manufacturer's instructions.

Equipment must be installed with work space clearances required by the Code.

Install equipment to permit maintenance and replacement of parts, and must be clear of openings with swinging or moving doors, partitions or access panels.

Each panelboard must be mounted with the top a maximum of 6' 6" above finished floor unless indicated otherwise on the Drawings.

Drywall Partition. Verify that site conditions are ready to receive work. Opening dimensions are to match the requirements of manufacturers for the items interfacing with wall. In the event of any discrepancies between manufacturers required opening dimensions and dimensions as shown on the Contract Drawings, the manufacturers required opening dimensions shall prevail.

Gypsum Board Installation:

Single layer:

- Apply face out with long dimension horizontal.
- All abutting ends and edges shall occur over studs.
- Joints on opposite sides of a partition shall occur on different studs.
- Joints at openings shall be located so no end joint will align with edges of openings.
- Fasteners shall be located 3/8-inch minimum to 1/2 inch maximum from edges and ends of wallboard.
- Fasteners shall be a maximum of 8 inches o.c. on walls.

Fire Rated Construction. Conform to UL design requirements for the stated assemblies.

Install gypsum board in accordance with manufacturer's instructions.

Place corner beads at external corners. Place edge trim where gypsum board abuts dissimilar materials. Use longest length practical.

Joint Treatment. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes. Feather coats onto adjoining surfaces so that camber is maximum 1/16 inch. Tape joints and corners of cementitious backing board.

Tolerances. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

Drywall Type Usage. Fire rated: All locations.

Submittals. Product Data: Provide data on metal framing, gypsum board, and joint tape. Indicate items to be provided.

Painting. The primary color scheme for walls shall be as approved by the Department. The Contractor shall provide a color scheme with samples to the Department for approval.

Cleaning. All work shall be conducted so as to allow continuous and uninterrupted operation of Traffic Management Center. As work proceeds and upon completion, promptly remove paint where spilled, splashed, or spattered. During progress of work keep premises free from any unnecessary accumulation of tools, equipment, surplus materials, and debris. Collect waste, cloths, and material, which may constitute a fire hazard, place in closed metal containers and remove daily from site. Upon completion of work leave premises neat and clean.

Protection. Protect other surfaces from paint and damage. Repair damage as a result of inadequate or unsuitable protection.

Schedule of Items to be Painted:

Painted finishes shall be provided for, but not limited to, the following items.

All interior surfaces as scheduled on Drawings including, but not limited to:

Hollow metal doors and frames.
Metal opening frames and trim.
Gypsum wallboard.
Mechanical grilles, registers, and diffusers, if not pre-finished by manufacturer.

Do not paint the following Items:

- Pre finished items, such as acoustical ceiling materials, mechanical, and electrical equipment, unless touch-up paint is required. Use touch-up paint furnished by manufacturer.
- UL, FM, and other code required labels.
- Equipment identification, performance rating, and nameplates.

Site Conditions.

Environmental Requirements. All existing drywall surfaces in Battery Room are to be prepared for new treatment, including priming, patching and sanding as required.

Apply paint finishes only when moisture content of surfaces is within manufacturer's acceptable ranges for type of finish being applied.

Surface temperatures or surrounding air temperature to be above 40 degrees F before applying alkyd finishes, above 45 degrees F for interior latex, and 50 degrees F for exterior latex work. Minimum for varnish and transparent finishes is 65 degrees F.

Provide continuous ventilation and heating facilities to maintain temperatures above 45 degrees F for 24 hours prior to, during and 48 hours after application of finishes.

Do not apply paint in areas where dust is being generated.

Provide lighting level in areas being painted of 80-foot candles measured mid-height at substrate surface.

Maintenance.

Extra Materials. Provide one gallon of each color, type and sheen to Department.

Label each container with color, type, texture, and room locations, in addition to the manufacturer's label.

Submittals.

Procedures for submittals.

Product Data. Submit product data for each type of paint specified.

> Technical data sheets indicating manufacturer's catalog number, paint type description, and VOC content.
>
> Painting Schedule listing surfaces to be painted with cross-reference to the specific painting and finishing system and application. Identify each paint material by manufacturer's catalog number and general classification.

Samples. Submit color brush-out sample for each paint color and sheen specified.

Three samples on 8 1/2 inch x 11-inch card stock for color and sheen verification.

Identify each sample by paint manufacturer, paint type, color, and sheen.

Assurance/Control Submittals.

> Test Reports: Submit manufacturer's Material Safety Data Sheets (MSDS) for each paint type specified.

Certificates: Manufacturer's certificate that Products meet or exceed specified requirements.

Qualification Documentation: Submit applicator documentation of experience indicating compliance with specified qualification requirements.

Contractor to verify of existing conditions before starting work. Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work. Verify that building framing components are ready to receive Work. Verify that rough-in utilities are in-place and located where required. Report in writing to Department prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Department.

Install studs and fasteners in accordance with manufacturer's published instructions and ASTM C 754. Provide metal stud spacing of 16 inches on center, maximum. Align stud web openings horizontally. Splice studs with minimum 8 inch nested lap, fasten each stud flange with minimum two screws. Construct corners using minimum three studs. Double stud at wall openings and door jambs- maximum 2 inches from each side of openings. Place studs at a minimum 2 inches from abutting walls. Install framing between studs for attachment of mechanical and electrical items. Install intermediate studs above and below openings to match wall stud spacing. Fasten studs adjacent to door frames, partition intersections, and corners to top and bottom runner flanges in double-stud fashion with metal lock fastener tools. Securely fasten studs to jamb and head anchor clips of door and borrowed-light frames. Place horizontally a cut-to-length section of runner with web-flange bend at each end, fasten with minimum one screw per flange. Position a cut-to-length stud (extending to top runner) at vertical panel joints over door frame header.

Site Tolerances.

Maximum Variation From True Position: 0.125 inches in 10 feet.

Maximum Variation From Plumb: 0.125 inches in 10 feet.

Inspect metal framing erection, placement, spacing, fasteners, and connections to building. Inspect security mesh installation, fastener type, spacing, and attachment to metal framing.

Doors and Hardware. Verify that field measurements, surfaces, and conditions are as required, and ready to receive Work. Report in writing to Engineer prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Department.

Install door and frame in accordance with manufacturer's published instructions, of size, and at locations indicated. Coordinate with adjacent wall construction for anchor placement. Field paint door and frame to match existing Battery and UPS Room finish, and as approved by the Department. The frame is to be mounted to the studding in such a manner to prevent a spreading of the frame from the studs of less than 1/2 inch.

Coordinate frame installation with size, location, and installation. Coordinate with door opening construction, doorframe, and door hardware installation.

Site Tolerances.

Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

Inspect door and frame installation, alignment, attachment to structure, and operation. Adjust hardware for smooth and balanced door movement. Cleaning installed Work.

Product Data. Indicate door materials, gauges, configurations, and location of cutouts hardware reinforcement, and finish. Shop Drawings: Indicate door elevations, internal reinforcement, and closure method. Assurance/Control Submittals, Certificates: Manufacturer certificate indicating that Products meet or exceed specified requirements.

Fasteners. Furnish hardware complete with all screws, through bolts and other fasteners attachment of hardware. Hardware installer shall drill pilot holes where necessary for all screws. Repair or replace doors, panels or other material damaged by hardware installation. Hardware supplier to inspect completed installation and list, in writing, all hardware installation deficiencies. Submit copy to Engineer.

Adjusting and Checking. Hardware supplier shall assist Contractor in adjusting and checking installation of finish hardware. Check, test and adjust moving parts prior to date of substantial completion. Furnish to Department special tools required to adjust and maintain hardware.

Demolition. The extent of Demolition Work is that Work necessary, and required to facilitate the new construction indicated. Demolition shall be such that all construction, new and existing, can be performed, and completed in accordance with the construction documents. The contractor shall visit the project site and familiarize himself with the existing conditions and project requirements. Verify the scope of the Work under this Section including salvage material.

Method of Measurement. The work of UNINTERRUPTIBLE POWER SUPPLY UPGRADE shall be measured for payment on an “Lump Sum” basis, which shall include all related facility and equipment construction, basic electrical material and methods, delivery, installation, battery removal, battery installation, and demolition including testing of equipment and components specified herein.

Basis of Payment. This work will be paid at the contract lump sum price for UNINTERRUPTIBLE POWER SUPPLY UPGRADE.

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: September 1, 2003

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 no later than 30 days from the receipt of each payment made to the Contractor.

State law addresses the timing of payments to be made to subcontractors. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, generally requires that when a Contractor receives any payment from the Department, the Contractor is required to make corresponding, proportional payments to each subcontractor performing work within 15 calendar days after receipt of the state payment. Section 7 of the State Prompt Payment Act further provides that interest in the amount of 2% per month, in addition to the payment due, shall be paid to any subcontractor 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 throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

As progress payments are made to the Contractor in accordance with Article 109.07 of the Standard Specifications for Road and Bridge Construction, the Contractor shall make a corresponding partial payment within 15 calendar days to each subcontractor in proportion to the work satisfactorily completed by each subcontractor. The proportionate amount of partial payment due to each subcontractor 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 shall be paid in full within 15 calendar days after the subcontractor's work has been satisfactorily completed. The Contractor shall hold no retainage from the subcontractors.

This Special Provision does not create any rights in favor of any subcontractor against the State of Illinois or authorize any cause of action against the State of Illinois on account of any payment, nonpayment, delayed payment or interest claimed by application of the State Prompt Payment Act. The Department will neither determine the reasonableness of any cause for delay of payment nor enforce any claim to payment, including interest. Moreover, the Department will not approve any delay or postponement of the 15 day requirement. State law creates remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are 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 in accordance with the Public Construction Bond Act, 30 ILCS 550.

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.

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.

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

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.