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Date: February 12, 2015

ADDENDUM No. 3

Subject: **Requisition No. C15RT101631000** – Furnish and Deliver Two Hundred and Sixty-One (261), LED Run Number Sign Kits for 3200 Series Rail Cars.

Enclosed please find Addendum No. 3. This addendum revises and updates the subject requisition. Insert this Addendum No. 3 into the Contract Documents of the subject requisition and consider it part of the official Contract Documents.

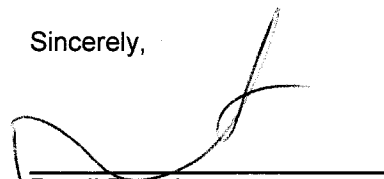
1. **Remove** the existing Detail Specification 8303-15A, dated 1/15/15, Pages (1 to 25)
Replace with the new attached Detail Specification 8303-15B, dated 2/10/15, Pages (1 to 25) identified as "Attachment A".
***Note:** The size of the LED matrix for each digit has been changed. See Section 4.1.2, page 7, for the updated size change.
2. Attachment B – Diagram of the train control – "A" car.
3. Attachment C – Diagram of the train control – "B" car.
4. The approved bidders are **Digital City Graphics** and **Axion Technologies**.

Please acknowledge receipt of Addendum No. 3 on the Proposal page titled Bidders Signature Page.
Failure to acknowledge receipt of this addendum may cause your bid to be non-responsive.

The bid opening date remains **Thursday, February 19, 2015, 11:00 a.m.**, local Chicago time.

If you have any questions, please contact Mr. Luis Bejar of my office at (312) 681-2468.

Sincerely,



Randi Brokvist,
General Manager, Purchasing

Enclosures

cc: E. McCormack
K. Brosnan
N. Shah
Contract File (C15RT101631000)

ATTACHMENT A
CHICAGO TRANSIT AUTHORITY
DETAIL SPECIFICATION
FOR
3-DIGIT RUN NUMBER SIGN; LIGHT EMITTING DIODE (LED) TYPE DISPLAY,
COMPLETE KIT, RAPID TRANSIT RAILCAR APPLICATION
CTA SPECIFICATION NO. 8303-15B (ADDENDUM #3)

1. SCOPE

- 1.1 This specification will describe the requirements for a contractor to furnish and deliver a new, complete, amber color, light emitting diode (LED) type, 3-digit run number sign, including sign boxes, control panels, manuals, and test equipment, to be used in the mid-life rehabilitation of Series 3200 rapid transit railcars in operation at the Chicago Transit Authority (CTA).

2. GENERAL INFORMATION

- 2.1 The latest version or revision of an applicable specification, drawing, standard, regulation, etc. at the time a given Invitation for Bid (IFB) is posted shall apply.
- 2.2 See the Contract Documents for the quantity of destination sign kits the CTA will require for a given contract. Each complete run number sign kit furnished shall be for one (1) CTA 3200 Series railcar.
- 2.3 See the Contract Documents for the location the required run number sign kits shall be shipped to for a given contract.
- 2.4 One (1) complete run number sign kit furnished shall be designated as a permanent training unit, and will be further detailed in a later section of this specification.

3. GENERAL REQUIREMENTS

- 3.1 All run number sign kits and equipment furnished shall be uniform. Any change or changes made to a kit shall be fully incorporated into all kits furnished, unless agreed to otherwise by the CTA Engineer.

3. GENERAL REQUIREMENTS (Continued)

- 3.2 All drawings, documents, reports, and other applicable items furnished to the CTA shall use customary U.S. units of measure. If drawings, tests, or other documents initially utilized a metric unit of measure, they shall also present the equivalent value of the appropriate U.S. unit of measure. Electrical and electronic symbols on all drawings shall conform to IEC or ANSI standards.
- 3.3 All documents, reports, and other items furnished to the CTA shall be prepared in clear, idiomatic, American English, and not be a literal translation to American English from another language.
- 3.4 All letters and reports shall be submitted on standard 8.5 inch by 11 inch paper, and all drawings shall be prepared to customary U.S. size standards.
- 3.5 The contractor shall furnish the CTA Engineer two (2) sets of full size paper prints of the latest revision of all drawings relating to the general layout, arrangement, wiring, and installation of the run number sign kit, as well as detail wiring and schematic diagrams of the run number sign kit. In addition, the contractor shall furnish drawings as AutoCAD electronic files on CD / DVD.
- 3.6 The contractor shall deliver to the CTA Engineer ten (10) printed sets of all parts catalogs and maintenance and instruction manuals. Manuals shall be printed on 8.5 inch by 11 inch size pages, punched with three (3) 5/16 inch diameter holes on 4.25 inch center-to-center spacing. Each page is to have a plastic reinforced edge. The manuals shall be assembled into heavy-duty binders suitable for extended shop use. The spine of each binder shall identify the manual by category and contents. Contractor shall insure all parts listed in a manual are fully identified, and that all operating information and parameters are furnished. The manuals shall also be delivered to the CTA Engineer on CD / DVD for use on a CTA personal computer (PC), which utilizes Microsoft® Office brand software. Manuals furnished shall be specific to the destination sign furnished to the CTA and not generic in nature. Manuals furnished shall follow the following guidelines, unless agreed upon in writing otherwise by the CTA Engineer.
- A) The maintenance concept shall address components to the lowest level identified in the parts catalog. The manuals shall contain a detailed analysis of each component, so that applicable personnel can effectively inspect, diagnose, service, maintain, adjust, repair, and replace equipment. Where interfaces occur, a cross reference shall be made to the appropriate location. The following topics shall be covered:
- 1) General – This shall include a basic description of the system and specifications on the major components in the system. Interfaces shall be identified and explained.

3. GENERAL REQUIREMENTS (Continued)

2) Theory of Operation – This shall include basic theory and the specifics of the system, and the relationships of assemblies, sub-assemblies, and components, with an explanation and analysis of their functions to the smallest replaceable component.

3) Operating Procedures – This shall include the location and functional descriptions of all controls, monitors, and indicators.

4) Diagnostics – This shall include a list in tabular format of symptoms, causes of malfunction or improper operation, and probable remedies to the smallest line replaceable component level or printed circuit board (PCB) level. Logic / flow charts may be used to assist in the diagnostics, but must reflect the most efficient and effective logic steps, and not simply the tracing of schematics.

5) Corrective Maintenance – This shall include step-by-step removal, replacement, and adjustment procedures to the smallest line replaceable component level. Detailed procedures shall be provided to adjust any destination sign unit that has been replaced. In addition, charts of families of consumables, including attaching parts, locations, log numbers or other information, and space for notes, shall be included. Consumables include lamps, filters, contact tips, fuses, and any other items as determined by the contractor and the CTA Engineer as being desirable for routine maintenance activity.

6) Preventive Maintenance – This shall include a list in tabular format of all inspection requirements, including cleaning, component replacement and repair schedule, required adjustments, limits, tolerances, optimum test point readings, calibration charts, and procedures in performing the preventive maintenance.

7) Shop Corrective Repair – This shall include detailed diagnostic procedures for assemblies and sub-assemblies, and step-by-step removal, overhaul, replacement, and adjustment procedures to the smallest replaceable component. Detailed test and adjustment procedures shall be provided for the complete destination sign, and for all of its assemblies and sub-assemblies.

3. GENERAL REQUIREMENTS (Continued)

- B) The parts manual shall enumerate and describe every part to the lowest level of replaceable component, including active and passive electronic components. They shall include component name, symbol, function, rating, tolerance, manufacturer or supplier, name and address of manufacturer or supplier, manufacturer / supplier part number, commercial equivalents, and quantity per assembly or sub-assembly. The manual shall include exploded view diagrams illustrating and indexing every part. Each diagram shall be accompanied by a page listing every item indexed in the associated diagram and providing complete ordering data for each item. Diagrams and exploded views shall be provided to identify the appropriate location of parts within a sub-assembly, and that of the sub-assembly within the next larger assembly. The part manual(s) shall include an open column adjacent to the manufacturer's or supplier's part number column for the eventual inclusion of the given part's assigned CTA Item Number. In addition, the same part number information shall be provided on CD / DVD in Microsoft® Excel spreadsheet format. The contractor shall submit two (2) draft copies of each manual within one hundred eighty (180) calendar days after a written notice to proceed for review has been made by the CTA Engineer. A copy of each manual will be returned with comments by the CTA Engineer to the contractor for changes to be made. Final manuals shall be delivered as soon as they are available, but no later than three (3) months after delivery of the first production run number sign kit to the CTA. Contractor shall be responsible for providing updates and corrections to the manuals furnished for the duration of the warranty period at no additional cost to the CTA.
- 3.7 The contractor shall assign a main contact person for a given run number sign kit contract the contractor has with the CTA. The person designated by the contractor shall be knowledgeable on the run number sign kits being furnished, be readily available to answer questions by the CTA, and to assist in all aspects of the contract.

3. GENERAL REQUIREMENTS (Continued)

- 3.8 The contractor shall conduct maintenance training courses on CTA property to instruct CTA training and maintenance personnel in the proper techniques and procedures for the operation and maintenance of the run number sign and its bench test equipment. This instruction shall cover component part familiarization, operation, repair, maintenance, and troubleshooting procedures.

The contractor shall coordinate the training with the CTA Railcar Maintenance Training Department through the CTA Engineer. Run number sign training shall commence no later than ninety (90) calendar days after the first production unit is delivered, and bench test equipment training shall commence no later than sixty (60) days after the equipment is delivered and installed.

Training outlines shall be submitted to the CTA for review at least sixty (60) calendar days before training is to begin, to allow time for any revisions deemed necessary by the CTA. An actual complete run number sign kit shall be provided as a training aid for use at the CTA Railcar Maintenance Training Center. The contractor shall assist CTA Railcar Maintenance Training Center personnel in setting up the run number sign set-up and getting it operating to factory specifications.

Copies of all training material and any training aids shall become the property of CTA at the conclusion of the training courses. Electronic versions of the training material, compatible with Microsoft® Powerpoint or other common software, shall be furnished to the CTA and become property of the CTA. The contractor will provide appropriate software to the CTA if Microsoft® Brand software cannot be utilized to display and modify the training materials.

If the run number sign kit furnished under a given contract is similar to a run number sign set-up already in service at the CTA, the training courses shall also cover the differences in hardware, software, maintenance procedures, and techniques between the two types of run number sign set-ups.

It is expected that four (4) groups of eight (8) persons for a total of thirty-two (32) persons will receive run number sign training, and four (4) persons will receive bench test equipment training.

- 3.9 The contractor shall keep a log for each run number sign kit. The log shall contain the list of serial-numbered components and the serial numbers for that unit.

3. GENERAL REQUIREMENTS (Continued)

- 3.10 The contractor shall construct an actual size mock-up / mock-ups of a run number sign and perform a trial fit for both boxes on a 3200 Series car at the CTA to insure the mounting points and wiring interfaces are correct. Multiple trial fits may be required in order to get all the interfaces correct.
- 3.11 Pre-Production Testing
- 3.11.1 The contractor shall ship four (4) complete pre-production run number sign kits to the CTA within six (6) months after a notice to proceed (NTP) has been issued by the CTA Engineer. These four (4) complete run number sign kits shall outfit two (2) married pairs of railcars (Or four (4) individual railcars). These pre-production run number sign kits will be installed by the CTA on existing CTA 3200 Series railcars and will be tested in regular railcar revenue service for six (6) months, including winter and summer seasons, in order to evaluate all aspects of the sign's design and operation, and before any production run number sign kits are shipped to the CTA. The CTA Engineer reserves the right to shorten the six (6) month test period. Any deficiencies found in the design or operation of any pre-production run number sign kit furnished shall be corrected by the contractor before the shipping of any production run number sign kit commences. Any modification(s) made to a pre-production sign kit shall be fully incorporated into all run number sign kits furnished.
- 3.11.2 The pre-production run number sign kits furnished will be operated and maintained as any other run number sign units found in existing CTA railcars. Efforts will be made to ensure their daily operation.
- 3.11.3 All other work performed on the railcars during the testing period shall be subject to the provisions listed in the Special Conditions section: CTA Labor, Materials, and Facilities.
- 3.11.4 If an abnormal function or failure occurs during the test period, it shall be fully investigated by the contractor to determine if it resulted from a design, manufacturing, implementation, etc., deficiency. If, in the judgment of the CTA Engineer, a deficiency is identified, the affected pre-production run number sign kit(s) shall be revised accordingly by the contractor, and then returned to service for the remaining part of the test period.
- 3.11.5 If, in the judgment of the CTA Engineer, an extension to the test period for the run number signs is necessary, the test period may be extended up to an additional six (6) months.

3. GENERAL REQUIREMENTS (Continued)

- 3.11.6 When the pre-production run number sign kits have successfully completed their testing period, and any possible extensions thereof, the CTA Engineer shall authorize the contractor to commence shipment of the remaining run number sign kits on a given purchase order. Successful completion of the testing period shall not relieve the contractor of responsibilities for compliance with all requirements of the specification.
- 3.11.7 If any run number sign kit involved in the testing period is out of service awaiting engineering, personnel, parts, modifications, etc., for a period exceeding ten (10) calendar days total during the testing period, the testing period shall be extended by the total length of time the least available run number sign unit was out of service, in order to ensure adequate operational experience with all aspects of the railcar.
- 3.12 Potential contractors shall present the following for evaluation by the CTA in the bid response package, or within three (3) business days if so requested by the CTA, a complete technical description of the proposed LED run number sign kit, to include but not be limited to; physical packaging arrangements, dimensions estimated weights, electrical power requirements, LED Matrix dimensions, material specifications, proposed method of run number entry and a proposed project timeline.

4. EQUIPMENT DESCRIPTION

4.1 General

- 4.1.1 Each railcar is presently equipped with one 3-digit run number sign box having curtain-type signage, incandescent back lighting and manual input. These existing run number sign boxes will be removed and replaced by the CTA in applicable 3200 Series railcars with the new run number sign kits purchased under this specification and a given purchase order.
- 4.1.2 The 3- digit run number sign shall use high-intensity amber LED technology. Sign characters shall be nominal four-inches (4") high and the LED matrix for each digit shall be no less than 12 high and 8 wide. Each digit of the run number sign shall be designed to display the numbers 0-9 and the letter 'X'.
- 4.1.3 The sign shall be mounted with a hinge and securement that shall keep the sign tight to the glass. Rubber bumpers shall be provided to cushion impacts on contact with the glass. The sign box shall have a front glass and be gasketed to exclude dust, dirt and water.

4. EQUIPMENT DESCRIPTION (Continued)

- 4.1.4 A red indicator light fully integrated into the box shall be arranged to be seen through the front windshield as on CTA's 3200 and 5000 Series cars. The light shall be mounted behind the front face of the box to preclude the red lens hitting the windshield if the bumpers have compressed.
- 4.1.4 The new run number sign boxes shall mount to the existing railcar's mounting points without any modifications to the railcar or to existing mounting brackets. The size and shape of the run number sign units shall be carefully considered in order to fit within the space available, and readily connect to the existing railcar's wiring harness.
- 4.1.5 The run number to be displayed on the run number sign shall be entered on a numerical key pad. The key pad shall use ruggedized and environmentally sealed components specifically designed to be used in rail car service. The key pad shall include the numbers 0-9, inclusive, as well as "Enter" and "Clear" keys to clear the run number display. Other keys may be added during the design review for the run number sign. The keypad shall also include a small display showing the run number as it is being keyed in.
- 4.1.6 The keypad shall be located within the run number sign box. The keypad shall be secured from unauthorized access and only be accessed using the CTA's standard MUDC key.
- 4.1.7 Alternative methods/arrangements to input the run number to be displayed may be proposed and will be reviewed by the Engineer.
- 4.1.8 The new run number signs shall turn ON whenever the master controller is active as on existing 3200 series cars or when an end of train signal is received. However, the new signs shall be designed to display ONLY when a run number has been entered into the key pad.
- 4.1.9 Displayed signage characters shall conform to ADA viewing requirements.
- 4.1.10 Any additional wiring or equipment/components that are needed to install the LED run number signs into the 3200 Series rail car shall be included within the run number sign kit.
- 4.1.11 The contractor will be responsible for reviewing the existing fuses and circuit breakers on the 3200 Series railcars to ensure that they are suitable to protect the new run number sign. If the circuit protection devices are not suitable to protect the new run number sign the contractor shall include replacement devices into the run number kit.

4. EQUIPMENT DESCRIPTION (Continued)

- 4.1.12 The proposed run number sign and all of its operational and design details, including diagnostics, programming, and the sign control, shall be reviewed by the CTA Engineer.

4.2 Bench Test Equipment

- 4.2.1 Contractor shall furnish one (1) bench test equipment set with all standard cards/boards, meters, oscillators, power supplies, displays, and other equipment necessary for complete verification of operation, and for adjustment of the cards/boards and control modules in each run number sign.

- 4.2.2 If existing CTA bench test equipment is fully compatible with the new equipment being furnished, then no additional bench test equipment is required. However, the contractor shall make any and all modifications required to existing bench test equipment in order for the existing bench test equipment to properly test the new equipment to be furnished under this specification and a given contract.

- 4.2.3 Any modifications required to any of the bench test equipment during the warranty period, as a result of changes in railcar system equipment or software subsequent to the delivery of the equipment to the CTA, shall be performed by the contractor at no additional cost to the CTA.

- 4.2.4 Contractor shall furnish training, as well as maintenance and parts manuals, for the bench test equipment, at least equal to that provided for the run number sign units themselves.

- 4.2.5 The bench test equipment to be furnished, including instructions and procedures, shall be reviewed by the CTA Engineer.

5. ELECTRICAL – GENERAL

5.1 Low Voltage DC Operating Parameters

- 5.1.1 All low voltage, nominal 37.5 VDC, operated devices shall be capable of operating continuously and performing their functions over a continuous operating voltage range of 23 VDC to 42.5 VDC, as designated in Table 4 of IEEE Std. 1476-2000, except as otherwise specified, measured at the load.

- 5.1.2 All low voltage devices shall withstand input voltage transients in accordance with the requirements of IEEE Std. 1476-2000, and thereafter operate properly when the voltage is within the range of 23 VDC to 42.5 VDC.

5. ELECTRICAL – GENERAL (Continued)

5.2 High Voltage DC Operating Parameters

5.2.1 All high voltage, nominal 600 VDC, operated devices shall be capable of operating continuously and performing their function over a continuous operating voltage range of 400 VDC to 800 VDC measured at the main knife switch.

5.2.2 All high voltage devices shall be compliant with and tested to meet the transient overvoltage requirements of IEC-61287-1, Section 2.1.1.9.d, *Supply Line Overvoltages*. In addition, they shall withstand all railcar and wayside generated voltage excursions up to 1000 VDC for a minimum of five (5) seconds and up to 3000 VDC for up to five hundred (500) microseconds duration without sustaining any damage or interruption of operation.

5.3 Alternating Current (AC) Operating Parameters

5.3.1 All AC operated devices shall be capable of operating continuously and performing their functions over a range of $\pm 10\%$ from a nominal 230 VAC potential, and $\pm 10\%$ from a nominal 60 Hz frequency, when measured at the railcar's auxiliary inverter output.

5.4 Device Protection

5.4.1 Adequate protection shall be provided for all devices against all voltage and frequency variations to be found on the CTA system and/or developed by the railcar equipment. All contactor and relay coils shall be suppressed with an appropriate device reviewed by the CTA Engineer.

5.5 Bus Bars

5.5.1 There shall be no exposed bus bars other than ground or B-. Bus bars other than ground or B- shall be insulated in a manner reviewed by the CTA Engineer. Bus bars shall be of copper material.

5.6 Fuses and Fuse Holders

5.6.1 All fuses shall be reviewed by the CTA Engineer and shall be mounted in fuse holders, unless agreed to otherwise by the CTA Engineer.

5. ELECTRICAL – GENERAL (Continued)

5.6.2 Fuses shall be used to protect 600 VDC circuits, unless otherwise specified. 600 VDC fuses shall be of the indicator type, Littelfuse® Type IDSR or equivalent.

5.6.3 All fuse installations shall be reviewed by the CTA Engineer.

5.7 Relays and Contactors

5.7.1 All relays and contactors shall be reviewed by the CTA Engineer.

5.8 Diodes

5.8.1 The use of diodes for circuit isolation, signal division, or backfeed prevention shall be discouraged. Diodes having any contact with trainline or railcar carbody wiring outside an electronic system shall have PIV of not less than three (3) times the applicable circuit voltage, or one thousand (1000) volts, whichever is greater, and shall have a current rating at least 200% larger than required. Diodes in these situations shall be reviewed by the CTA Engineer.

5.9 Opto-Couplers

5.9.1 Opto-couplers may be used to isolate sensitive electronic circuits from trainline and railcar carbody wiring.

5.10 Electronic Circuit Sensitivity

5.10.1 Electronic circuits that utilize trainline or railcar carbody wiring signals shall be particularly designed to be immune to leakages, spikes, surges, and other variations that can regularly occur, and shall not recognize any spurious voltage resulting from leakage or induction as a valid signal. The steps taken to meet these requirements shall be reviewed by the CTA Engineer.

5.11 Electromagnetic Interference

5.11.1 The contractor shall ensure that electrical and electronic systems furnished under this specification shall properly operate in their operational environments, without either suffering, or causing harm because of, unintentional electromagnetic interference, either radiated and/or conducted.

6. ELECTRICAL – RAILCAR WIRING

6.1 Wire Size

6.1.1 Railcar carbody wire shall not be smaller than size 16 AWG. Special care shall be taken to provide physical protection for all wire to prevent damage while pulling, or damage from vibration, especially at terminals. Wiring for interconnection of various pieces of special apparatus may be of different sizes, stranding, and shielding as recommended by the various manufacturers, and reviewed by the CTA Engineer.

6.1.2 All wiring smaller than size 16 AWG shall require review by the CTA Engineer. Electronic card wiring shall be no smaller than size 26 AWG and electronic panel wiring shall be no smaller than size 22 AWG.

6.2 Wire Harnesses and Layout

6.2.1 Insofar as practical, all wiring shall be fabricated on the bench into convenient units, and then installed as prefabricated groupings in standardized locations.

6.2.2 Harnesses secured with Nylon material wire/cable ties shall have the Nylon material wire/cable ties trimmed and located to eliminate hazard to personnel from sharp edges. Nylon material wire/cable ties shall be applied with the proper tool to prevent damage to wire insulation the tie may be in contact with.

6.2.3 No wire harness shall lie on the bottom of any enclosure.

6.3 Wire Segregation

6.3.1 Wires carrying different types of current, or having different potentials, shall not be carried in the same conduit, or in unsegregated ducts, or be cabled together.

6.4 Wire Markers

6.4.1 Each wire shall be plainly and permanently marked within one (1) inch of each of its terminations with a wire tag. All terminals of all terminal boards and all studs shall be clearly and permanently marked with a marker showing the designation of the wires to be attached to each terminal. Each terminal board shall have a unique identifying number.

6.4.2 Wire markers shall be white in color having black color numbering/lettering on them for contrast. Wire markers and their markings, and the marking of terminal boards, shall be reviewed by the CTA Engineer.

6. ELECTRICAL – RAILCAR WIRING (Continued)

6.4.3 All wires on any terminal shall have the same designation. When more than one (1) wire carries the same designation, e.g., "B-", each wire shall also carry a unique numeric identifier. Each wire shall have only one (1) designation between circuit-interrupting or power-consuming devices.

6.5 Wire Physical Protection

6.5.1 Where wires enter a conduit or duct, or pass through any partition, rubber or phenolic bushings, or plastic or metal bell mouths, shall be provided to prevent abrasion of the wire's insulation. Where wires pass through partitions or any metal plate, the protection shall prevent wire insulation chafing on either side of the partition or plate. All conduit ends shall be reamed before installation to remove sharp edges and burrs. Open or loom wiring must have protection wherever it could come in contact with structure edges to prevent chafing or cutting. Wire protection items are to be installed before any wiring is installed.

6.5.2 Where watertight cable glands are used, they shall be equipped with seal washers between the gland body and the panel through which they pass. The use of extra sealer is not permitted. Cable glands shall be sized to clear the cable terminations, or they shall be mounted on gasketed mounting plates to permit removal without re-terminating the cables.

6.6 Plugs and Connectors

6.6.1 All plugs and connectors, unless otherwise agreed to by CTA Engineer, shall be multi-pin, cylindrical, with positive lock bayonet coupling and visual indication of full mating, to improve ease of removal and reduce wiring problems.

6.6.2 The connectors shall be, or be equivalent to, CIR Series connectors manufactured by ITT Veam Corporation. Connectors shall be reviewed by the CTA Engineer.

6.6.3 Plugs and connectors for ethernet/IP circuits or network signals shall be metal, heavy duty, D coded M12 or Harting type suitable for applications on a vibrating object. Standard commercial plastic connectors and plugs shall not be permitted.

6.6.4 All plugs and connectors shall be reviewed by the CTA Engineer.

6. ELECTRICAL – RAILCAR WIRING (Continued)

6.7 Portable Test Unit (PTU) Plugs and Connectors

6.7.1 The receptacles applied to each micro-processor controlled system for PTU access to the controls, and the plugs applied to the cables of the PTUs, shall be rugged, heavy-duty, and suitable for application on a railcar. All PTU plugs and connectors shall be reviewed by the CTA Engineer.

6.8 Printed Circuit Boards (PCBs)

6.8.1 All printed circuits boards (PCBs) are to be made of FR-4 circuit board material. Applicable PCB locations shall have plated-through holes for the leads of through-hole components that are mounted on the PCB. All PCBs shall have a solder mask, and identification of components on the PCB shall be inked in white, or a color in high contrast relative to the PCB's solder mask color.

6.8.2 Through-hole resistors on a PCB having a power rating greater than 1 Watt shall have the resistor body raised up from the PCB when its leads are being soldered to the PCB.

6.8.3 All PCBs used shall be of the "plug-in" type, except where agreed to otherwise by the CTA Engineer.

6.8.4 Plug-in PCBs shall be designed with keyed plugs and sockets to prevent incorrect insertion of a PCB into a given header, rack, or receiving unit. Exposed pin type plugs shall not be permitted. Each PCB shall be labeled and its PCB header or rack identically labeled to identify which location each PCB correctly belongs. In addition, each PCB shall have a permanently affixed serial number and bar code.

6.8.5 Appropriate electrical contact areas on a given PCB, and for its header or rack receiving the PCB, shall be gold-plated for minimum contact resistance, minimum surface corrosion, and long-term contact reliability.

6.8.6 All PCB soldering operations shall only have one of the following appropriate solder types used, using a rosin core flux, for the soldering of applicable components to the PCB: "Sn 60 / Pb 40" ; "Sn 63 / Pb 37" ; "Sn 62 / Pb 36 / Ag 2".

6. ELECTRICAL – RAILCAR WIRING (Continued)

- 6.8.7 After a given PCB has been completely “stuffed” with components, the applicable surface areas of each side of the PCB shall receive a coat of conformal coating after all soldering fluxes have been removed. The conformal coating used shall be able to be readily removed from the PCB, if required, using an electrical contact cleaner or solder flux remover solvent, and then be able to be “touched-up” with a spray-on conformal coating after a given PCB repair or given test has been completed.
- 6.8.8 Applicable electrical components on a PCB shall be properly soldered and/or mounted in order to prevent component failure due to vibration.
- 6.8.9 A sample of each completely stuffed, ready for mounting/insertion, PCB that will be found in a complete destination sign set-up shall be submitted to the CTA Engineer for review.
- 6.9 Microprocessors – Application Features
- 6.9.1 Applicable microprocessors shall be reprogrammable from the portable test units (PTUs) without removing devices or PCBs, unless specifically agreed to by the CTA Engineer.
- 6.9.2 The PTU software shall be a stand-alone application that shall not be dependent on the software in the unit being monitored. When software revisions are made to the various systems, no changes shall be required to the PTU software to function properly.
- 6.9.3 The CPU and associated logic packages shall be housed in an EMI shielding metal enclosure, unless otherwise agreed to by the CTA Engineer. Access shall be gained by quick-acting fasteners which do not require special tools to operate. It shall not be necessary to remove EPROMs from the PCB in order to reprogram them, unless specifically agreed to by the CTA Engineer.
- 6.9.4 All signals applied to a given microprocessor, and all outputs from the input-output port, shall be through isolation buffers located external to the microprocessor. The buffers shall:
- a) Protect and isolate the microprocessor from damage due to over voltage, under voltage, voltage transients, shorts, and opens.
 - b) Perform necessary voltage translations.
 - c) Remove noise and undesired signals.

6. ELECTRICAL – RAILCAR WIRING (Continued)

- d) Limit, process, discriminate, and format those signals, such as speed sensor input, display drivers, and code rate input, which, due to their nature, might cause an excessive amount of throughput for a given microprocessor.
- 6.9.5 Batteries, if used, shall not be soldered to PCBs, but mounted in holders reviewed by the CTA Engineer.
- 6.9.6 Only one (1) battery setup shall be permitted per system unless explicitly agreed to by the CTA Engineer. Systems shall be designed to share a battery setup to prevent battery proliferation.
- 6.9.7 Battery type used shall be readily available in the USA marketplace.
- 6.9.8 Non-volatile memory components shall not require a battery or other device requiring periodic replacement.
- 6.10 Microprocessors – Software
 - 6.10.1 The microprocessor software shall be structured to clearly identify and provide all of the following functions.
 - a) Initialization - Routines that are required to restart the microprocessor and prepare the hardware for correct operation.
 - b) Discrete Logic Functions - A separate and distinct routine for each and every major logic function, or signal processing, that the microprocessor system is to perform.
 - c) Executive - Routines which link the subroutines into a system.
 - d) Self-Check and Monitor - Routines within the normal flow and operation of the microprocessor system which continually perform a self-check, provide an external indication of the operational status, and provide an indication of data values.
 - e) Diagnostics - Routines which will not disrupt the normal program flow or timing, but provide diagnostic information of system operation.

6. ELECTRICAL – RAILCAR WIRING (Continued)

6.11 Microprocessors – Software Support

- 6.11.1 All non-commercial, project specific software shall be placed in escrow and shall become the property of the CTA should the original equipment manufacturer (OEM), or the OEM's successor(s), cease to support it. The escrow period shall be for a minimum of twenty (20) years after the date of issuance of a given purchase order by the CTA.

7. MATERIALS & WORKMANSHIP

7.1 General

- 7.1.1 All material entering into the manufacturing of the equipment shall be of first-class quality. All workmanship shall be high grade and shall conform to the best manufacturing practices in all respects.
- 7.1.2 All materials shall conform to applicable ANSI, ASTM, Federal Specifications, or other standards as agreed to by the CTA Engineer. Cases of conflict between specifications shall be brought to the attention of the CTA Engineer for review.
- 7.1.3 All tests shall be conducted using U.S. customary units of measure, or shall be converted and reported in U.S. customary units of measure.
- 7.1.4 All materials intended for use in CTA railcars shall be appropriately marked and/or stored to be readily identified, and shall be adequately protected during handling and storage during all stages of the manufacturing process.
- 7.1.5 All metal fastening components, such as, but not necessarily limited to, screws, bolts, nuts, and washers, shall conform to applicable ANSI standards and, unless made of stainless steel material, shall be appropriately plated or e-coated to resist corrosion and rust.
- a) All hardware of 0.25 inch diameter or larger shall have national coarse threads. Exceptions may be permitted, but requires the review of the CTA Engineer.
 - b) Bolts used with Nylon insert lock nuts shall be sized to extend at least two (2) full threads through the locking ring, but shall not be longer than the next standard length.
 - c) All bolts and cap screws shall have their head marked to indicate grade and material in accordance with SAE J429f.

7. MATERIALS & WORKMANSHIP (Continued)

- d) All nuts shall be marked to indicate their grade, in accordance with SAE J995b or Industrial Fasteners Institute IFI-100 Paragraph 3, for prevailing torque type steel lock nuts.
- e) All hardware, such as bolts, cap screws, washers, nuts, etc., when used together at a given fastening point, shall be of the same grade
- 7.1.6 Components, plates, shields, or other parts which may need to be removed in order to perform maintenance or repair work shall not be secured with any self-tapping or sheet metal type fasteners, including speed nuts or J-nuts. The use of push-on "Tinnerman" type nuts is not permitted without review by the CTA Engineer.
- 7.1.7 Components, plates, shields, or other parts which may need to be removed in order to perform maintenance or repair work shall be interchangeable with another of the same identical item.
- 7.1.8 All bolts, nuts, cap screws, and machine screws shall be locked to prevent any loosening in service. Lock washers shall not bear against flat washers, but shall bear against non-rotating surfaces. The use of Loctite® or a similar type chemical compound shall not be permitted without review by the CTA Engineer.
- 7.1.9 Screws shall be driven in a manner to preclude damage to the screw's drive recess. No screws with damaged, burred, or rounded out drive recesses shall be allowed.
- 7.1.10 Manufacturer's trademarks shall not be visible.
- 7.1.11 Bolt holes shall be accurately located and aligned. When necessary during assembly, holes may be reamed round to specified size in position. Rounding out holes or elongating holes during assembly to affect alignment shall not be allowed.
- 7.1.12 All applicable stainless steel material components and parts shall be attached with stainless steel hardware.
- 7.1.13 All parts shall be free from sharp edges and burrs that might potentially injure a person or damage a person's clothing.

7. MATERIALS & WORKMANSHIP (Continued)

7.2 Aluminum

7.2.1 All aluminum material used, if not hard anodized, shall be properly prepared, prior to being top-coated with acrylic enamel paint, or powder coated, on all of its applicable surfaces. Color to be used will be per the direction of the CTA Engineer.

7.2.2 Wherever aluminum material contacts any other material, it shall be isolated, and the joint shall be sealed with suitable material(s) in order to prevent galvanic coupling.

7.2.3 Aluminum material used that is anodized shall be hard anodized.

7.2.4 Aluminum material shall be used only where specified, or where explicitly accepted by the CTA Engineer.

7.3 Wire and Cable

7.3.1 Wire and cable sizes and stranding shall conform to ASTM specifications.

7.3.2 All wire and cable electrical conductors (and shielding, if applicable) shall be of tin plated, soft, annealed copper and shall have the properties and characteristics specified in ASTM B-3 or B-33, latest revision.

7.3.3 All wire and cable shall be of stranded conductor design. Use of wire or cable having a non-stranded (solid) conductor design shall be reviewed by the CTA Engineer.

7.4 Wire and Cable Insulation

7.4.1 For wire and cable being size 8 AWG and smaller, its insulation shall be ETFE fluoropolymer per ASTM B-3159, latest revision, or irradiated cross-linked polyolefin (XLPO). For wire and cable being larger than size 8 AWG, its insulation shall be irradiated cross-linked polyolefin (XLPO).

7.4.2 For wire and cable used in nominal 37.5 VDC or 120/240 VAC circuits, the insulation on the wire and cable shall have a rating of at least 600 VDC. For wire and cable used in nominal 600 VDC circuits, the insulation on the wire and cable shall have a rating of at least 2000 VDC.

7.4.3 The insulation on wire and cable used shall have a temperature rating of at least 125° C.

7. MATERIALS & WORKMANSHIP (Continued)

- 7.4.4 In areas where wires and cables will be subjected to relatively high temperatures, the insulation on the wire and cable shall be silicone rubber, glass braid covered, or filled TFE, with a temperature rating of at least 260° C.
- 7.5 Wire and Cable Insulation Colors
 - 7.5.1 The color of the insulation on a given wire or cable shall be homogenous throughout the insulation and not just on the insulation's outer surface.
 - 7.5.2 The insulation on a given wire or cable shall be white color for relatively low voltage (37.5 VDC) circuits, black or dark gray color for relatively high voltage (600 VDC) circuits, and blue color for any wire or cable conducting an alternating current, unless agreed to otherwise by the CTA Engineer.
- 7.6 Carbody Multi-Conductor Cable
 - 7.6.1 All carbody multi-conductor cable shall be reviewed by the CTA Engineer.
 - 7.6.2 Wire sizes and shielding shall be as required by the subsystem being interconnected. Conductor insulation and shielding shall be selected for flexibility, durability, and suitability for the application.
 - 7.6.3 The outer jacket of a given carbody multi-conductor cable shall be neoprene or XLPO material.
 - 7.6.4 Color coding shall be per IPCEA No. S-19-81, NEMA WC-3, Section 5.6.2.1, Method 1, Table 2, including second tracer color for a cable having over twenty-one (21) individual conductors.
- 7.7 Wiring – General
 - 7.7.1 All wiring work shall be performed by, or under the direction of, experienced personnel. Appropriate tools for skinning/stripping insulation, cutting, tinning, soldering, and attaching mechanical or compression type terminals to conductors, shall be utilized.
 - 7.7.2 Care shall be utilized whenever insulation is being stripped from a given wire so as to avoid cutting or nicking of the copper conductor in a given wire, whether the wire has stranded conductors or a solid conductor.
 - 7.7.3 Wire in a duct and conduit shall be free of any kinks and insulation abrasions.

7. MATERIALS & WORKMANSHIP (Continued)

- 7.7.4 Any pulling compound used in a duct or conduit wire or cable installation, shall be non-conductive, non-odorous, not attract vermin, or attack the insulation of the wire or cable.
- 7.7.5 Any wire or cable which may be subjected to motion relative to its two (2) end connection points shall be appropriately supported, so as to eliminate any type of breakage or damage to the wire or cable, or its end connection points.
- 7.7.6 For a given wire or cable, sufficient slack shall be left to provide strain relief any time a wire or cable is pulled through a compartment.
- 7.7.7 A service loop sufficient for two re-terminations shall be provided for all wires of size 8 AWG or smaller terminating on a terminal board.
- 7.7.8 Wire or cable harnesses secured with Nylon material wire/cable ties shall have the wire/cable ties appropriately trimmed and located to eliminate any hazard to personnel from any remaining sharp edges. Nylon material wire/cable ties shall be installed with the proper tool to prevent damage to a given wire's outer insulation. Unless otherwise specified, Nylon material wire/cable ties used shall be black in color. Black color Nylon material wire/cable ties generally are more resistant to UV and ozone than natural color (Ivory) Nylon material wire/cable ties. The length and width of a given Nylon material wire/cable tie used shall be appropriate for the specific application.
- 7.7.9 No wire or cable harness shall lie on the bottom of any enclosure.
- 7.8 Solder and Soldering Process
 - 7.8.1 As for PCBs mentioned in Section 6.8.6 above, the solder types that can be used for making solder joints shall be: "Sn 60 / Pb 40"; "Sn 63 / Pb 37"; "Sn 62 / Pb 36 / Ag 2". The solder used shall have high-purity components and shall be from a recognized brand name manufacturer, such as, but not necessarily limited to, Kester®. Solder flux to be used for soldering operations shall be a rosin type.
 - 7.8.2 Solder used shall be at least equal to that designated as SAE No. 1, Class B.

7. MATERIALS & WORKMANSHIP (Continued)

- 7.8.3 A non-corrosive, non-conductive, rosin type flux shall be applied to a given solder joint area immediately before the soldering process commences. The rosin flux can be applied independently, or, if appropriate for the soldering task, can be in the center core section of a given solder wire. Any flux remaining after a given soldering operation has been completed shall be removed with an appropriate flux removal solvent so no residues remain at the solder joint area afterwards.
- 7.8.4 Ends of conductors to be soldered shall be thoroughly cleaned and tinned. Care shall be exercised to prevent the burning or "flow-back" of a given wire's outer insulation, and excessive flowing of the solder along the conductor.
- 7.8.5 Only enough solder shall be used to make a proper solder joint. Excessive solder at a solder joint shall be avoided. When applicable, a good mechanical joint of the applicable parts shall be made first prior to making the solder joint. All of the applicable parts that will be connected when making a solder joint shall be uniformly heated to the applicable temperature before solder is applied and flows to make the joint.
- 7.8.6 Each completed solder joint shall be clean and relatively bright in silver color. "Dark", "grainy", or "cold" solder joints are not allowed and shall be re-done.
- 7.9 Electrically Insulating Tape
- 7.9.1 When required, any electrically insulating tape used shall be of polyvinyl chloride (PVC) material having unrestricted qualification under Specification MIL-1-7798A. The tape shall have 0.007 inch nominal overall thickness. Color of the tape shall be as required. The electrically insulating tape shall be 3M® Scotch® Brand "Super 33+" vinyl electrical tape, or a technical equivalent in performance and quality reviewed by the CTA Engineer.
- 7.10 Electrical Terminals – Crimp & Solder Types
- 7.10.1 Crimp and solder type electrical terminals used shall be of the "ring" type, with a hole for a given screw/bolt size and an opening for a given size AWG wire as required for the application. The electrical terminals can be of tinned copper material or tinned brass material.
- 7.10.2 Electrical terminals for AWG size 8 wire and smaller shall be equal to Amp Brand PIDG type, and for larger than AWG size 8 wire, shall be made of seamless, tubular, copper, equal to Amp Brand, Ampower II type, unless otherwise agreed to by the CTA Engineer.

7. MATERIALS & WORKMANSHIP (Continued)

- 7.10.3 After a given wire and electrical terminal have been joined, one shall not see any of the wire's inner conductors at the area where the wire's outer insulation meets the body end of electrical terminal. Also, the area where the wire's outer insulation meets the body end of the electrical terminal shall have an appropriate length of heat shrink tubing placed over it. The heat shrink tubing shall be of the appropriate diameter before shrinking, have a 2:1 shrink ratio, and be black in color unless specified otherwise by the CTA Engineer.

7.11 Paint and Painting/Finishing

- 7.11.1 All applicable surface areas of a component or item to be painted/finished shall be properly and thoroughly prepared, including the removal of any surface debris and welding spatter. After being prepared for painting/finishing, a minimum of one (1) coat of base primer and then a minimum of one (1) coat of acrylic enamel paint, such as DuPont™ Centari® Brand, or equivalent, shall be applied. Powder coating may be used in lieu of using acrylic enamel paint. All painting/finishing work on a given component or item shall comply with the appropriate painting/finishing manufacturer's product and process guidelines and recommendations, and shall be performed in an area free from dirt, dust, and airborne contaminants. Any painting/finishing work performed on a given component's or item's surface which shows the presence of dirt, dust, runs, or "orange peel" after process completion shall not be acceptable, and shall be redone at the contractor's expense.

8. CAPITAL SPARES & OTHER DELIVERABLES

8.1 Capital Spares

- 8.1.1 The contractor shall furnish capital spares of specific run number sign unit components/parts in the quantities presented below. These capital spares shall be shipped to the CTA as directed by the CTA Engineer. If a modification or modifications are made to any unit installed on a railcar before or after delivery to the CTA during the warranty period, then the modification or modifications shall also be incorporated into the capital spares at no cost to the CTA.

a) Any relays and contactors: Ten (10) of each type.

b) Power supply: Ten (10).

c) Plug-in circuit cards (PCBs): Ten (10) of each type.

8. CAPITAL SPARES & OTHER DELIVERABLES (Continued)

d) Non plug-in circuit cards (PCBs): Ten (10) of each type.

If designs and arrangements of components/parts other than those listed above are used, the CTA Engineer will adjust the description and quantity to correspond to the description of the component/parts actually being furnished by the contractor as capital spares.

8.1.2 The contractor shall prepare a detailed components/parts list on the specific run number sign kit they intend to furnish for review by the CTA Engineer. The list shall include, but not necessarily be limited to, manufacturer/vendor component/part numbers and complete component/part descriptions, so that the CTA can assign an appropriate CTA Item Number to a given component/part of the run number sign kit.

8.1.3 The capital spare units listed in Section 8.1.1 shall be shipped to the CTA no later than ninety (90) days after shipment of the first production destination sign kit to the CTA by the contractor.

8.2 Other Deliverables

8.2.1 Bench Test Equipment - The specified bench test equipment shall be shipped to the CTA no later than one hundred eighty (180) days after the delivery of the first production run number sign kit to CTA by the contractor.

9. SHIPPING REQUIREMENTS

9.1 Each shipment of contractor product to the CTA shall include a complete packing list. Each packing list furnished shall include, but not necessarily be limited to, the following items.

- a) Description of Product(s)
- b) Quantity
- c) CTA Purchase Order Number

9.2 Contractor product being shipped to the CTA shall be appropriately packaged, and when applicable, placed atop a pallet or pallets made of wood or polymer material. The CTA can accept shipment of contractor product during the hours of 7:00 AM until 3:00 PM, CST, Monday through Friday, not including Saturdays, Sundays, or Holidays, unless mutually agreed to in advance by the contractor and the CTA Engineer.

10. PRE-BID MEETING

- 10.1 See the Special Conditions section of the Contract Documents for possible information on a CTA pre-bid meeting for a given contract. The CTA Procurement Administrator, whose name and contact information is listed in the Contract Documents, shall administer the pre-bid meeting and determine its date, time, and location.

11. WARRANTY & PRODUCT SUPPORT REQUIREMENTS

- 11.1 See the Special Conditions section of the Contract Documents for product warranty and product support requirements to be furnished by the contractor or the contractor's authorized agent.

12. ADDITIONAL INFORMATION FOR POTENTIAL CONTRACTORS

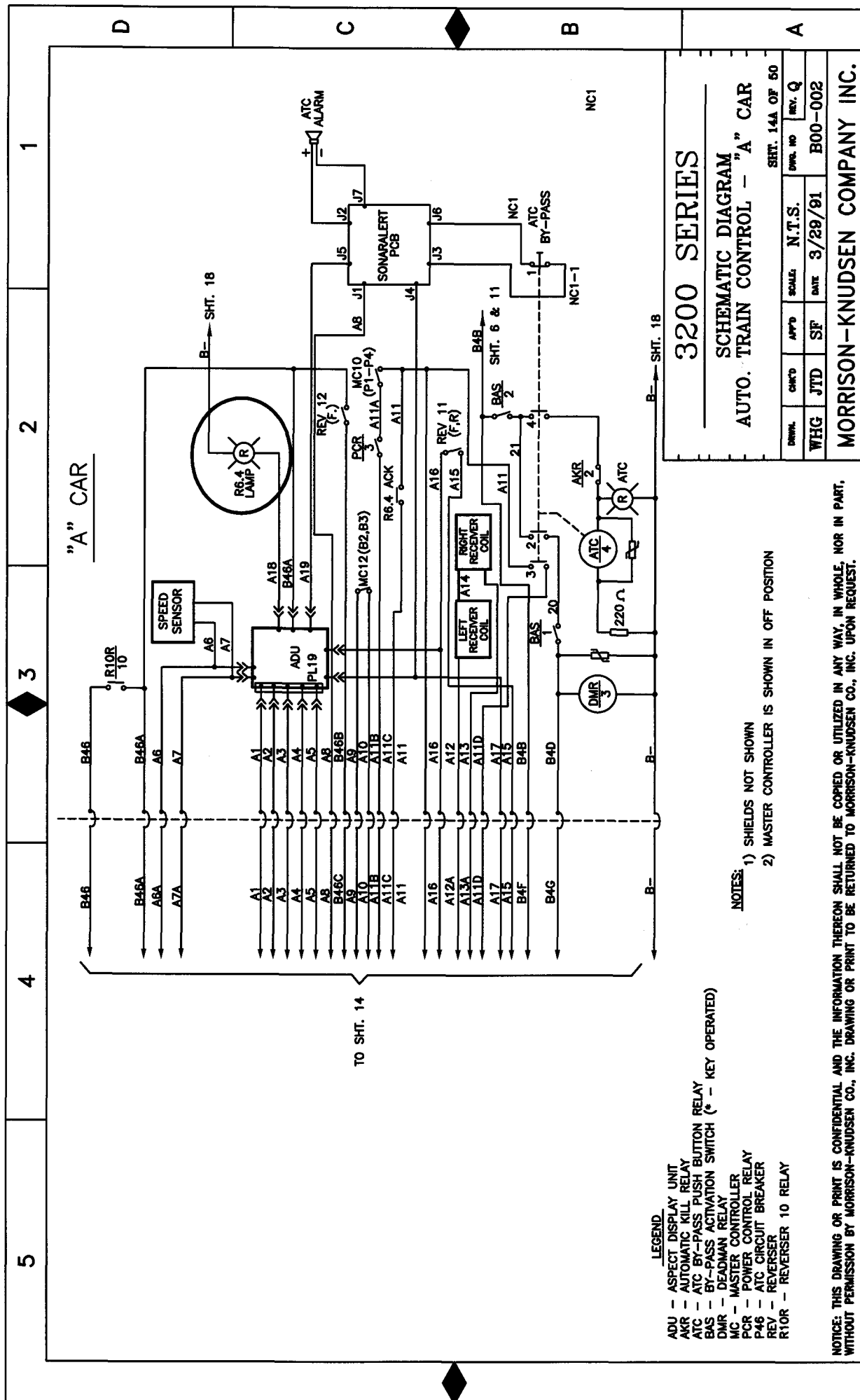
- 12.1 Not every section, or a partial section within a section, of this specification may be specifically applicable to the product required, namely,

3-DIGIT RUN NUMBER SIGN; LIGHT EMITTING DIODE (LED) TYPE
DISPLAY,
COMPLETE KIT, RAPID TRANSIT RAILCAR APPLICATION

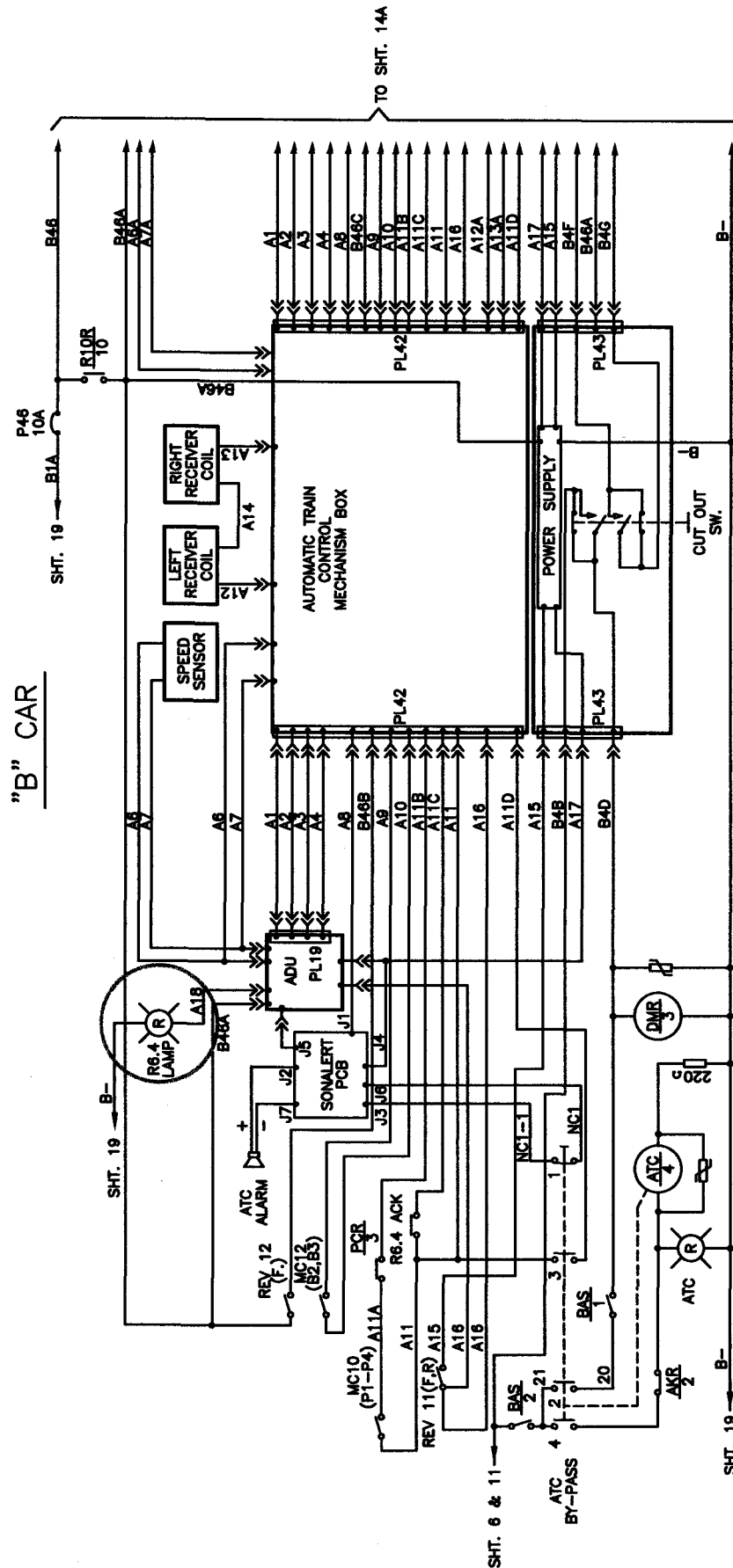
- 12.2 Should a potential contractor fail to provide all the necessary information on a given subject matter for a given procurement in the potential contractor's bid response package, the potential contractor shall respond with the necessary information within three (3) business days if so requested by the CTA.
- 12.3 Potential contractors requiring any additional information shall contact the CTA Procurement Administrator whose name is stated in the Contract Documents. Potential contractors requiring additional information from a person or persons potentially listed in the Special Conditions section of the Contract Documents must route their request through the Procurement Administrator. Potential contractors who contact any CTA personnel other than the Procurement Administrator during the open bidding period will be considered to be in violation of the provisions set forth in the Contract Documents.

EM/ em – Initial Specification – 05/20/14

EM/ em – Revised for bid contract , Addendum # 3 – 02/10/15



1



LEGEND

ADU	-	ASPECT DISPLAY UNIT
AKR	-	AUTOMATIC KILL RELAY
ATC	-	ATC BY-PASS PUSH BUTTON RELAY
ABAS	-	BY-PASS ACTIVATION SWITCH (* - KEY OPERATED)
DMR	-	DEADMAN RELAY
DMR	-	DEADMAN RELAY
DMC	-	MASTER CONTROLLER
PCR	-	POWER CONTROL RELAY
P46	-	ATC CIRCUIT BREAKER
REV	-	REVERSER
RTOR	-	REVERSER 10 RELAY

NOTES:

- 1) SHIELDS NOT SHOWN
- 2) MASTER CONTROLLER IS SHOWN IN OFF POSITION

3200 SERIES

**SCHEMATIC DIAGRAM
AUTO. TRAIN CONTROL - "B" CAR**

SEPT. 14 OF '50	DWG. NO.		REV.		Q
	SCALE		N.T.S.		
	DATE		3/29/81		
	APP'D				
	CHK'D				
	JTD		SF		
	WHG				
	B00-002				

MORRISON-KNUDSEN COMPANY INC.

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567 West Lake Street
Chicago, Illinois 60661-1498
TEL 312 664-7200
www.transitchicago.com

Date: February 6, 2015

ADDENDUM No. 2

Subject: **Requisition No. C15RT101631000** – Furnish and Deliver Two Hundred and Sixty-One (261), LED Run Number Sign Kits for 3200 Series Rail Cars.

Enclosed please find Addendum No. 2. This addendum revises and updates the subject requisition. Insert this Addendum No. 2 into the Contract Documents of the subject requisition and consider it part of the official Contract Documents.

Included with Addendum No. 2 are the following attachments:

Attachment A – Written Questions from Potential Bidders and CTA's Responses.

Attachment B – Copy of the sign in sheet from the 1-28-15 Pre-Bid meeting.

Attachment C – Copy of the minutes from the 1-28-15 Pre-Bid meeting.

Attachment D – Diagram of the exterior lighting circuits.

Attachment E – Diagram of the MUDC key.

Please acknowledge receipt of Addendum No. 2 on the Proposal page titled Bidders Signature Page. Failure to acknowledge receipt of this addendum may cause your bid to be non-responsive.

The bid opening date remains **Thursday, February 19, 2015, 11:00 a.m.**, local Chicago time.

If you have any questions, please contact Mr. Luis Bejar of my office at (312) 681-2468.

Sincerely,

Randi Brokvist,
General Manager, Purchasing

Enclosures

cc: E. McCormack
K. Brosnan
N. Shah
Contract File (101631000)

Requisition No. **C15RT101631000**
ADDENDUM No. 2 – ATTACHMENT A

1. Question: Can you please provide us with actual car wiring diagrams of RNS (including breaker ratings and similar?)

CTA Answer: A diagram will be provided with the next addendum.

2. Question: Can you please provide us with information related to the modifications that you intend to do in order to activate/deactivate RNS in some specific conditions?

CTA Answer: The CTA will need to make a final determination on the exact modifications. However, we can see the possible need for extra inputs into the RNS to activate the sign on the tail end of the train.

3. Question: Can you please provide us with a CTA MUDC key and CTA MUDC key drawing?

CTA Answer: The drawing will be provided with the next addendum. Sample keys can be provided to the successful bidder.

4. Question: Can you please clarify what's CTA position in regards to actual hinge (to be replaced or not), is hinge movement require by operation people or not?

CTA Answer: If the contractor can provide a means of verification, such as a smaller display on the mirrors of the RNS, then the CTA may be willing to remove the hinge from the RNS.

5. Question: Can you please confirm to us that the Portable Test Unit (PTU) port and function are not required?

CTA Answer: Portable Test Unit (PTU) is not required.

6. Can you please confirm that RNS internal DC/DC converter needs to provide galvanic isolation (primary voltage-LVPS to secondary-internal)?

CTA Answer: CTA does not specifically require galvanic isolation for low voltage (37.5VDC) converters.

Stia.

Subject: C15 RT101631000 LED Run Number Sign Kits

Date	120/15	Time	10:00 A.M.	Location	Spoke's Shop
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[illegible]

Attachment C

Summarized Minutes of Pre-Bid Meeting

Meeting Date: Wednesday, January 28, 2015.

Re: C15RT101631000 – Invitation for Bid (IFB), procurement to furnish, and Deliver Two Hundred Sixty One (261), LED Run Number Sign Kits for 3200 Series Rail Cars.

Meeting attendees and their entity affiliation, as entered in writing on the meeting attendance sheet, were:

Luis Bejar – CTA
Randi Brokvist – CTA
Eric Mattson – CTA
Chris Acevedo – CTA
Eglind Myftiu – CTA
Tom Matuszak – CTA
Robert Kielba – CTA
Klaudiusz Kruszecki – CTA
Sylvain Boulanger – Axion
Mike Bauer – Digital City Graphics

The meeting commenced at approximately 10:10 A.M., in the CTA South Shops Engineering Department's Conference Room with Luis Bejar welcoming all attendees and stating that the IFB pre-bid meeting is for C15RT101631000, which is for a contractor to furnish, and deliver two hundred sixty one (261), LED run number sign kits for 3200 series rail cars. The CTA's personnel introduced themselves along with their title.

It was mentioned to the meeting attendees that C15RT101631000 which is an IFB is non-negotiable, will result in a firm fixed-price contract, and will be awarded to the lowest responsive and responsible bidder.

It was mentioned to the meeting attendees that the purpose of the pre-bid meeting was to assist with questions regarding the specs, CTA's documents, and contractor's qualification meetings where the bidders need to be approved before submitting a bid.

Eric Mattson and Chris Acevedo went over the specifications and scope of the project and what CTA was trying to accomplish with the LED run number signs kits. Eric

advised every one of the requirement that the pre-production kits would be required four (4) months after NTP.

It was mentioned to the attendees that there will be no official CTA responses given during this meeting to any question(s) an attendee may ask on C15RT101631000, and that official responses by the CTA will be issued in writing via an Addendum to C15RT101631000 on questions formally asked via e-mail or letter to the CTA Senior Procurement Administrator handling C15RT101631000, namely Mr. Luis Bejar. Questions are due on Monday, February 9, 2015 by close of business. Potential bidders were advised to submit questions before the due date if they wanted.

It was mentioned to the attendees that this project has an aggressive timeline and that the CTA is looking to make the March board (March 11, 2015). Bids are due on Thursday, February 19, 2015 no later than 11:00 a.m., in the bid room on the 2nd floor of CTA's Headquarters. If sending anything by Fedex or UPS attendees were advised to submit in a timely manner.

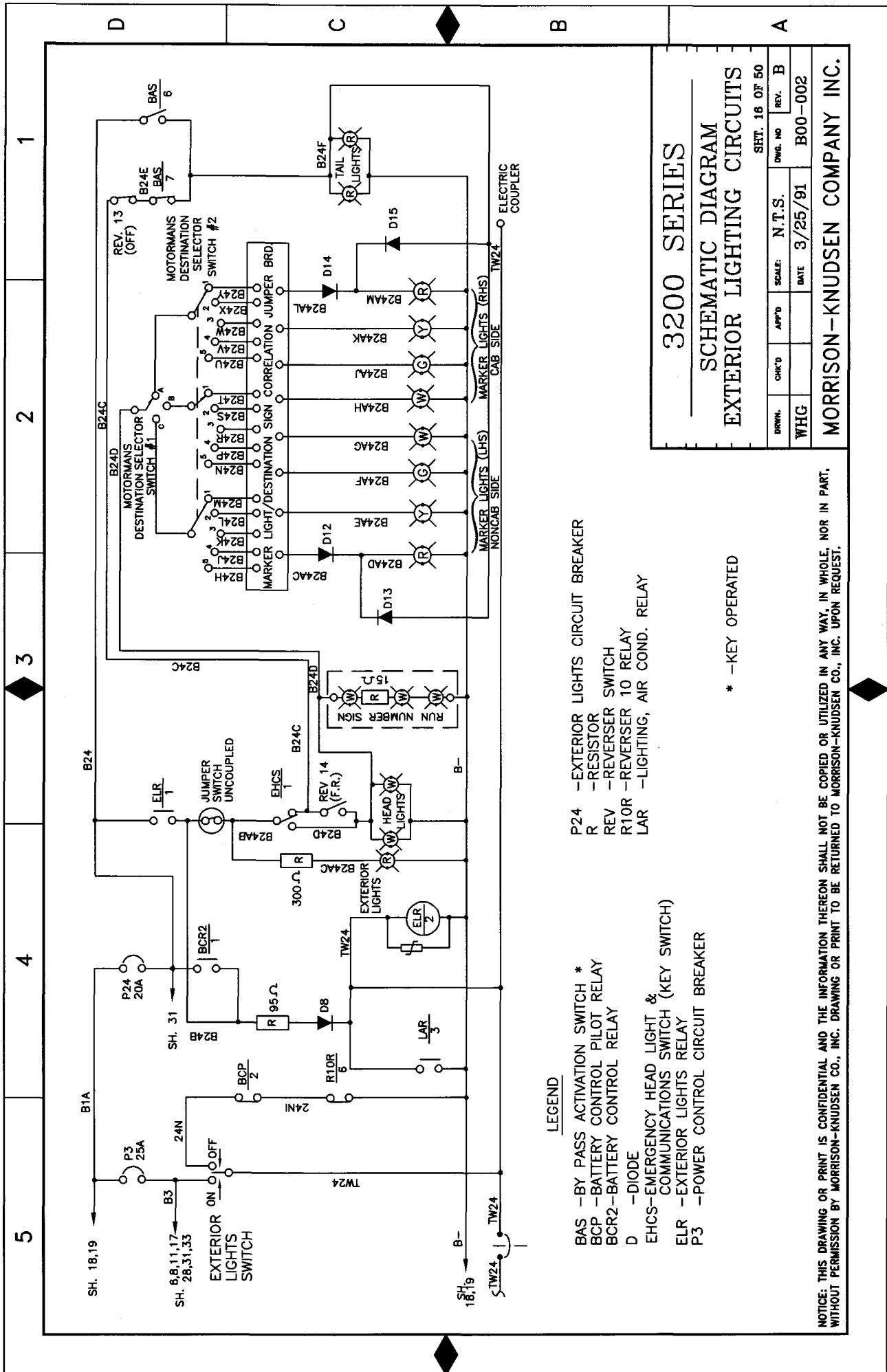
It was mentioned to the attendees that technical documentation needs to be submitted along with their bid.

It was mentioned to the attendees that the CTA has placed a 1% DBE goal for C15RT101631000. Any DBE entity that might be considered for their product or service must be CTA approved as a DBE entity. If they need help meeting this requirement send Luis Bejar an e-mail requesting a list of DBE vendors.

The meeting proceeded with an inspection where interested attendees were shown a run number sign in a 3200 series car. The potential bidders were allowed to take pictures as needed. It was reiterated that any informal questions asked during the inspection would be answered to the best of CTA's ability but were not binding and would have to be in the form of a written request.

The pre-bid meeting for C15RT101631000 ended at 12:15 p.m.

End of minutes



3200 SERIES

SCHEMATIC DIAGRAM

EXTERIOR LIGHTING CIRCUITS

SHT. 18 OF 50

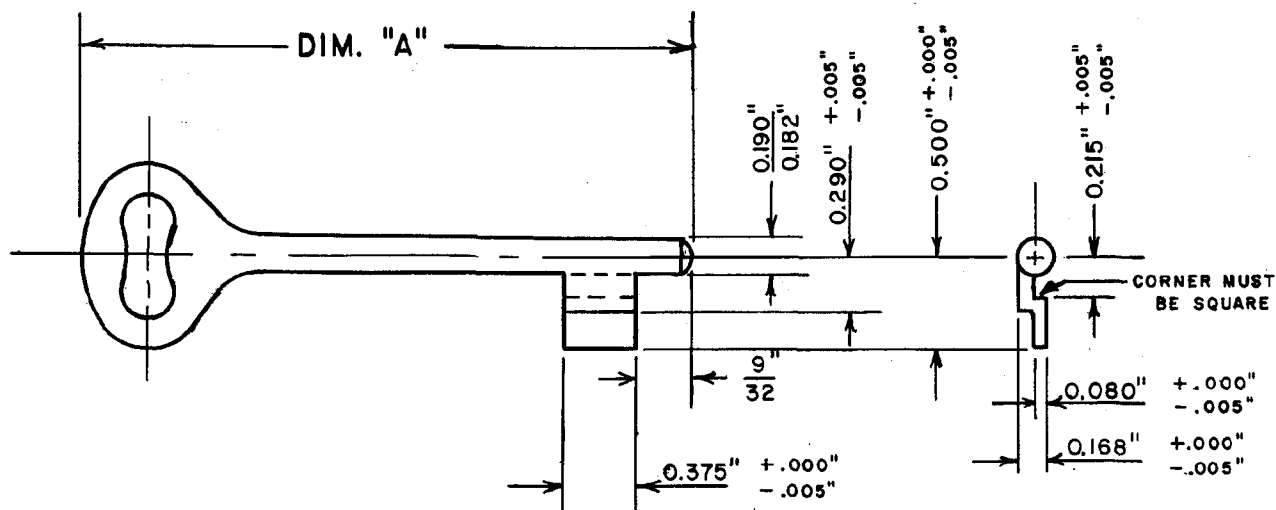
DRWN.	CHK'D	APPR'D	SCALE:	N.T.S.	REV.	B
WHG			DATE	3/25/91		

B00-002

MORRISON-KNUDSEN COMPANY INC.

- LEGEND
- BAS -BY PASS ACTIVATION SWITCH *
 - BCP -BATTERY CONTROL PILOT RELAY
 - BCR2-BATTERY CONTROL RELAY
 - D -DIODE
 - EHCS-EMERGENCY HEAD LIGHT & COMMUNICATIONS SWITCH (KEY SWITCH)
 - ELR -EXTERIOR LIGHTS RELAY
 - P3 -POWER CONTROL CIRCUIT BREAKER
- P24 -EXTERIOR LIGHTS CIRCUIT BREAKER
- R -RESISTOR
- REV -REVERSER SWITCH
- R10R -REVERSER 10 RELAY
- LAR -LIGHTING, AIR COND. RELAY
- * -KEY OPERATED

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MATERIAL: INVESTMENT CAST STAINLESS STEEL - TYPE 410

DIMENSION "A"

3 1/2" - KEY 1 - LOT NO. 4070191

2 1/2" - KEY 2 - LOT NO. 4070192

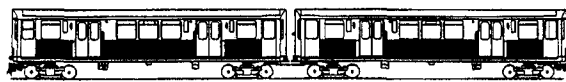
ORIGINAL ON DWG. RS-5019

DIMENSIONING & TOLERANCING
PER ANSI (USASI) Y14.5

UNLESS OTHERWISE SPECIFIED
SURFACE FINISH
DIMENSIONS ARE IN INCHES

TOLERANCES: ANGLES ±
FRACTIONS: ±
DECIMALS .XX ±
DECIMALS .XXX ±
RIVET & BOLT EDGE MARGIN ± .05
BEND RADII .01 ON .03 & .06

± .03 ON .09 & GREATER
SHEET METAL CORNER RADIUS
INT .19
DR-5
16



**RAIL OPERATIONS
ENGINEERING & TECHNICAL SERVICES**

STANDARD KEY

Drawn WRK Scale FULL Date 10-27-97

Checked WRK
Mike D. [Signature]
Manager, Technical Services

Approved [Signature]
General Manager, Eng & Tech Services

R-1-602

Next :
Asy.

CHICAGO TRANSIT AUTHORITY
Advertisement for Bids

NOTICE OF CHANGE - BID OPENING DATE WITH ADDENDUM #1

Notice is hereby given that the bid opening date heretofore advertised as **Tuesday, March 24, 2015** has been changed to **Thursday, February 19, 2015** at 11:00 a.m. in the Bid Office - 2nd Floor, 567 W. Lake Street, Chicago, Illinois 60661-1498, for the following item:

Req. C15RT101631000, Spec. No. CTA: 8303-15
Furnish and Deliver Two Hundred Sixty One (261), LED
Run Number Sign Kits for 3200 Series Rail Cars, F.O.B
Destination.

PROPOSAL GUARANTEE: NONE

A Pre-Bid Meeting will be held on Wednesday, January 28, 2015. The meeting will convene at 10:00 a.m. (central time) at the CTA Skokie Rail Maintenance Facility located at 3701 West Oakton, Skokie, IL 60076.

For additional information, please contact Luis Bejar, Senior Procurement Administrator, 312/681-2468.

Any contract resulting from this bid is subject to a financial assistance between the Chicago Transit Authority, the United States Department of Transportation and the Regional Transportation Authority.

Contractor will be required to comply with all applicable Equal Employment Opportunity laws and regulations and affirmative action requirements of the Federal Transit Administration and Illinois Human Rights Commission.

All bidders will be required to certify that they are not on the Comptroller General's list of ineligible contractors.

Any contract resulting from this advertisement will be awarded to the lowest responsive and responsible bidder.

Chicago Transit Authority hereby notifies all bidders that it will affirmatively ensure that in regard to any contract entered into pursuant to this advertisement, Disadvantaged Business Enterprise will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color or national origin in consideration for an award.

PLEASE NOTE: When bids are sent by mail, delivery service or delivered in-person to the CTA Bid Office, the bidders shall be responsible for their delivery only to the Bid Office before the advertised date and hour for the opening of the bids.

(2)

The Bid Office hours are Monday through Friday from 8:00 a.m. to 4:30 p.m. Chicago time, except holidays.

The right is reserved to accept any bid or any part or parts thereof or to reject any and all bids. Acceptance of any bid is subject to concurrence by the Regional Transportation Authority and the United States Department of Transportation.

All inquiries should be directed to and copies of bid documents obtained from the Bid Office - 2nd Floor, 567 W. Lake St., Chicago, Illinois 60661-1498.

CHICAGO TRANSIT AUTHORITY

By: Ellen McCormack
Vice President,
Purchasing & Supply Chain

January 19, 2015



Date: January 16, 2015

ADDENDUM # 1

Subject: **Requisition No. C15RT101631000** – Furnish and Deliver Two Hundred Sixty One (261), LED Run Number Sign Kits for 3200 Series Rail Cars.

Enclosed please find Addendum No. 1 and two (2) attachments. This addendum revises and updates the subject requisition. Insert this Addendum No. 1 into the Contract Documents of the subject requisition and consider it part of the official Contract Documents.

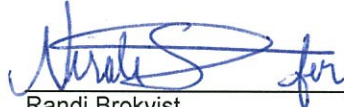
1. **Remove** the existing Special Conditions Pages (SC-1 to SC-12)
Replace with the new attached Special Conditions Pages (SC-1 to SC-12) identified as "Addendum No. 1 - Attachment A".
2. **Remove** the existing Detail Specification 8303-15, dated 01/08/2015, Pages (1 to 24)
Replace with the new attached Detail Specification 8303-15A, dated 1/15/2015, Pages (1 to 25) identified as "Attachment B".

Please acknowledge receipt of Addendum No. 1 on the Proposal page titled Bidders Signature Page. **Failure to acknowledge receipt of this addendum may cause your bid to be non-responsive.**

The bid opening date has been changed from: Tuesday, March 24, 2015 at 11:00 a.m., Chicago Time to: Thursday, February 19, 2015 at 11:00 a.m.

If you have any questions, please contact Mr. Luis Bejar of my office at (312) 681-2468.

Sincerely,


Randi Brokvist,
General Manager, Purchasing

Enclosures

cc: E. McCormack
K. Brosnan
N. Shah
Contract File (C15RT101631000)

**SPECIAL CONDITIONS
CONTRACT NO. C15RT101631000
SPECIFICATION NO. CTA 8303-15A**

PERFORMANCE/PAYMENT BOND

No bond required

INSURANCE

None required

PROPOSAL PAGE PREPARATION

The Bidder is to state on Proposal Page (P-1) the manufacturer's name, part number, unit price and total extended price for the two hundred sixty one (261), LED Run Number Sign Kits, including capital spares, test equipment, manuals and training that they propose to furnish.

Bidder shall indicate the name of company bidding, address, contact person, title, phone number, e-mail, and payment terms.

EXTENDED PRICE

Extended price shall include all applicable charges and represent the firm delivered price.

PRE-BID MEETING AND INSPECTION

It is the intent of this section that the following matters and all other major engineering considerations be settled to the satisfaction of the Bidder and the CTA before submission of bids so that CTA may determine exactly what the Bidder is offering. After award of a Contract, if any, the CTA recognizes no obligation to consider Contractor's proposal which should have been presented during the pre-bid period.

A Pre-Bid Meeting will be held on **Wednesday, January 28, 2015**. The meeting will convene at **10:00 A.M. (Central Standard Time, at the Chicago Transit Authority's Skokie Rail Maintenance Facility, located at 3701 West Oakton, Skokie, Illinois 60076.)**

CTA shall make available to all Bidders, a 3200 Series Rail Car and its existing Run Number Sign Box for the purpose of performing an inspection of such equipment. This meeting shall be the only official general meeting for potential Bidders to view the equipment. The date, time and location for the **Pre-Bid Inspection** of said equipment is specified above. The **Pre-Bid Inspection** will provide an opportunity for prospective Bidders to additionally acquaint themselves with the 3200 Series Rail Car and the Run Number Sign Box being replaced. Any questions arising out of or not addressed in the General and Special Conditions and Detail Specification No. 8303-15A must be submitted in **writing to the Procurement Administrator, listed in the Title Page no later than Wednesday, February 11, 2015 by end of the business day**. All questions, CTA responses, minutes and comments will be incorporated via an Addendum, to all Bidders. This Addendum shall be sent to each prospective Bidder prior to the **Bid Due date**. Each Bidder shall perform a thorough and complete inspection of the 3200 Series Rail Car and its existing Run Number sign box.

**SPECIAL CONDITIONS
CONTRACT NO. C15RT101631000
SPECIFICATION NO. CTA 8303-15A**

PRE-BID MEETING AND INSPECTION (continued)

It shall be the Contractor's responsibility to provide any and all material as identified in Detail Specification No. 8303-15A.

BASIS OF AWARD

If awarded, award shall be made to the responsive and responsible Bidder submitting the lowest total extended price for all two hundred sixty one (261), LED Run Number Sign Kits, including capital spares, drawings/diagrams, manuals/catalogs, test equipment, and training that they propose to furnish.

SINGLE BID RESPONSE

If only one (1) bid is received in response to the invitation for bids, cost or price analysis and evaluation and/or audit shall be performed of the single Bidder's cost breakdown in order to determine if pricing is fair and reasonable.

CONTRACTOR QUALIFICATIONS

Potential Bidders shall provide prior to bidding through the "Other Pre-Bid Meetings" process, "Alternative Response" process, or within three (3) calendar days after being so requested by the CTA, previous verifiable experience designing and supplying similar parts for transit/transportation companies. In addition, potential Bidders shall provide a list of the names, address, and contract information of at least three (3) previous customers as references.

OTHER PRE-BID MEETINGS

Bidders may request individual meetings to discuss the following:

1. Questions regarding or requests for clarification of Contract Documents.
2. Consideration of Bidder requests for variation of Contract Documents.
3. Consideration of the item which the Bidder proposes to offer as an 'equal' to those specified in the Contract Documents. The Bidder shall submit documentation to substantiate that the Bidder proposes to furnish something equal to that specified in the Contract Documents. In addition to descriptive literature, test data, and evidence of successful similar applications, this documentation shall include the Bidder's comprehensive comparative evaluation of that specified and that proposed and, upon request by the Engineer, samples of that specified and that proposed. The Engineer may require, and the Bidder shall provide, additional documentation requested by the Engineer to satisfy him that Bidder's assertions are factual.
4. Consideration of all items, procedures, systems and sub-systems that the Bidder proposes to furnish and utilize in the performance of the work required by the Contract Documents, wherein review by the CTA is required but no part number or other definitive ordering description is stated.
5. CTA evaluation of all required information as defined in Section 3 of the General Requirements, of the Technical Specification by the prospective Bidders.
6. Consideration of any other Contract matter which the prospective Bidder desires considered prior to bidding.

**SPECIAL CONDITIONS
CONTRACT NO. C15RT101631000
SPECIFICATION NO. CTA 8303-15A**

OTHER PRE-BID MEETINGS (continued)

Bidders requesting these meetings shall do so to allow the CTA to conduct the meetings with all Bidders prior to February 11, 2015.

Subjects which the Bidders wish to discuss shall be submitted in writing on the "Bidder's Response Form" to the Procurement Administrator no later than three (3) calendar days prior to scheduled meeting date.

Minutes of "Pre-Bid Meetings" will be prepared by the CTA and distributed by the Procurement Administrator to all firms on the list of Bidders as well as funding agencies.

Minutes of the meetings constitute the official record and verbal statements are not binding on any party.

ALTERNATE RESPONSES

If prospective Bidders elect not to request a meeting, they are required to submit all their requests for approved equals, deviations, subcontractors, etc., covering the complete specification by **February 11, 2015** on the submittal form contained in the specification as "Bidder Response Form" to the Procurement Administrator.

The CTA will review the submittal information.

The CTA will then contact the individual Bidder that his submittals have been reviewed.

Any written documentation resulting from the review will be circulated to all firms appearing on the list of Bidders as well as funding agencies.

Bidders who have previously scheduled a pre-bid meeting shall not use the "Bidders Response Form" to pose additional questions for clarification or present requests for approved equals, deviations, approval of subcontractors, etc. in lieu of requesting another pre-bid meeting.

FINAL OPEN MEETING WITH ALL PROSPECTIVE BIDDERS

If circumstances warrant or a Bidder so requests and submits an agenda, a final open meeting may be held after issuance of the final specification addendum to review any major issues which have resulted from any addenda issued. All prospective Bidders are strongly encouraged to attend the final open meeting.

Minutes of the meeting, to include all questions and answers, will be circulated to all firms on the list of Bidders as well as funding agencies. Minutes of the meeting constitute the official record and verbal statements are not binding on any party.

DELIVERY

The first four (4) pre-production, LED Run Number Sign Kits shall be delivered no later than four (4) months from the Notice to Proceed. Each of these units shall be subjected to the pre-production testing required by the Technical Specification, Section 3.11. The contractor shall not ship additional production of the LED Run Number Sign Kits until

**SPECIAL CONDITIONS
CONTRACT NO. C15RT101631000
SPECIFICATION NO. CTA 8303-15A**

DELIVERY (continued)

notified by the Procurement Administrator that these four (4) LED Run Number Sign Kits have successfully completed the pre-production tests.

The first of the remaining LED Run Number Sign Kits shall be delivered beginning two months after the successful completion of the pre-production test phase. The remaining LED Run Number Sign Kits shall be delivered at a rate of sixteen (16) units in the first month of delivery and eight (8) units per month for each subsequent month up to the total quantity of units to be delivered.

Manuals, drawings, CAD deliverables, replacement units, and training shall be delivered as specified in the respective sections of the Technical Specifications.

Delivery shall be made to Chicago Transit Authority's Skokie Rail Maintenance Facility, located at 3701 West Oakton, Skokie, Illinois 60076 to the attention of Eglind Myftiu or Julian Sandu (847-982-5139). **Deliveries are to be made weekdays except holidays between the hours of 7:00 AM and 3:00 PM.**

GENERAL OBLIGATIONS OF THE CONTRACTOR

The Contractor shall design each item of equipment or apparatus, strictly in accordance with the requirements of the Contract Documents.

The Contractor shall furnish all labor and materials, plant, tools, test equipment, and transportation required for the performance and completion of the work in the manner and within the time herein specified.

It is understood and agreed that the Contractor shall do all the work necessary to furnish the equipment and prepare the required detail drawings of the various parts. The Contractor shall assume responsibility for the proper working and fitting together of all parts and specialties, with necessary clearance for successful operation in accordance with the Contract Documents. Each end product shall function as intended.

The Contractor shall perform at no additional expense to the CTA all of the items set forth as its responsibility under this Contract and pay all fees, permits and royalties for patented appliances, products or processes incorporated in the work.

It shall be specifically understood that the omission of any drawing or schedule from these Contract Documents, which is required to make the equipment or apparatus furnished by Subcontractor or the Contractor fully complete and suitable for successful performance of the specified functions in accordance with the requirements of the Contract Documents, shall not relieve said Subcontractor or the Contractor from furnishing the required items or parts under the Contract Documents.

**SPECIAL CONDITIONS
CONTRACT NO. C15RT101631000
SPECIFICATION NO. CTA 8303-15A**

GENERAL OBLIGATIONS OF THE CONTRACTOR (continued)

The Contractor shall advise the Engineer of the latest applicable revision of any drawing, chart, listing, model, part, style or similar identification referenced in the detail specification. The Engineer will decide whether the revision may apply to this Contract.

The Contractor shall be entirely responsible for the management of all interfaces within his design effort and between the Contractor and each Subcontractor in order to insure successful fit and function of all the components to be furnished on this contract.

REVIEW OF DRAWINGS AND DATA AND DESIGNS

The Contractor shall submit for the Engineer's review, all drawings and data required by the Contract Documents and such other drawings and data as may be requested by the Engineer which will enable the Engineer to determine to a high degree of engineering confidence that the Contractor will deliver equipment conforming to the Contract Documents suitable for the CTA operations, maintenance and safety practices, and operation in the CTA's operating environment. The CTA agrees that, to the best of its ability, non-complying and unsuitable features proposed by the Contractor will be identified at the design stage of development, and returned to the Contractor for corrections and/or adjustments.

Drawings and data submitted by the Contractor for review and concurrence by the Engineer which contain variation from the requirements of the Contract Documents shall be accompanied by an explanation detailing the justification for variation. Drawings and data by themselves will not be recognized by the Engineer as valid instruments for request and acceptance of variations from the requirements of the Contract Documents. Any drawings and data submitted by the Contractor without any explanation for a proposed variation shall not be used by the Contractor to implement the proposed variation.

The engineer shall return drawings and data to the Contractor within ten (10) working days after acknowledged receipt, with one of the following notations:

1. No comment
2. See comments
3. Request for additional information

In the event the drawing is returned with "no comment", the Contractor may proceed with the work on the basis of such drawings.

In the event the drawing is returned with the notation "see comments", or "request for additional information", the Contractor shall have fifteen (15) working days to make the required changes or modification or to supply the required additional information and return the drawing for review. The Contractor shall be granted no extension of the delivery schedule as a consequence of drawings being returned with comments or requesting additional information.

**SPECIAL CONDITIONS
CONTRACT NO. C15RT101631000
SPECIFICATION NO. CTA 8303-15A**

REVIEW OF DRAWINGS AND DATA AND DESIGNS (continued)

All technical data, test schedules, test results, progress schedules and reports, drawing lists, samples and other data submitted by the Contractor and requiring review by the Engineer will be handled in accordance with the above provisions.

Review of Contractor's drawings hereunder shall not relieve the Contractor of any responsibility, including but not limited to, responsibility for accuracy of dimensions and details. The Contractor shall remain responsible for agreement and conformity of its drawings and data with the Contract Documents, and for conformity of the LED Run Number Sign Kits thereof with the Contract Documents.

Engineering Conferences shall be conducted for the purpose of reviewing designs, establishing baseline configurations and answering questions raised by the Contractor or Suppliers. Engineering Conferences shall be conducted at facilities suitable for the purpose (including Contractor and Supplier plants) as recommended by the Contractor and agreed to by the Engineer. For design reviews, the Contractor shall transmit data applicable for each review of the Engineer prior to the scheduled review.

First Article Inspections shall be conducted to confirm equipment compliance with specification and design requirements. A First Article Inspection shall consist of a physical configuration inspection as well as a functional demonstration unless otherwise agreed to by the Engineer.

First Article Inspections shall be scheduled by the Contractor.

The Contractor shall be responsible for documenting the final configuration of the items inspected and maintaining configuration control if any changes are made after the final inspection.

The Contractor shall furnish to the Engineer prior to each first article inspection an inspection and demonstration plan for each item for review by the Engineer. The Engineer shall make every effort to identify any omissions or additions needed and relay them to the Contractor for inclusion in the plan.

The Engineer will attend all First Article Inspections unless specifically waiving that right.

The results of each First Article Inspection shall be documented by the Contractor and all documents relating to the inspection shall be attached and a copy forwarded to the Engineer. If re-testing is required, the Contractor shall document the results and forward them to the Engineer.

AUTHORITY OF THE ENGINEER

The Engineer shall be the principal contact between CTA and the Contractor and will handle, on behalf of CTA, all matters within the scope of the Engineer's authority under the Contract Documents. Decisions and orders of the Engineer are subject to appeal under GENERAL CONDITIONS, paragraph 30 – **DISPUTES**.

**SPECIAL CONDITIONS
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AUTHORITY OF THE ENGINEER (continued)

The Contractor shall proceed on the basis of any order or decision of the Engineer except for those for which the Contractor proposes to make a claim for change in cost or delivery. When the Contractor proposes to make such claim as a result of an order decision of the Engineer, a detailed Change Order proposal shall be prepared by the Contractor before proceeding.

The Engineer may reject any design or work proposed or supplied which the Engineer determines is not in conformance with Technical Specifications; is not suitable for CTA operation, maintenance or safety practices; or is not suitable for CTA environment.

The Engineer will determine which alternate products, proposed by the Contractor subsequent to the Pre-Bid Procedures, are qualified and may be used by the Contractor. The Engineer will interpret all questions concerning the meaning and intent of the Technical Specifications including Drawings. The Engineer may permit variations from the requirements of the Detail Specifications requested by the Contractor and which are in accordance with the intent of the Technical Specifications.

All orders and decisions of the Engineer will be confirmed promptly by written instruments. When such order or decisions rejects a design, material or work proposed or accomplished by the Contractor, such instrument of rejection shall include the reasons for rejection.

CTA LABOR, MATERIALS AND FACILITIES

CTA shall be under no obligation to provide its own labor or facilities in the performance or requirements which are obligations of the Contractor under terms of the Contract. Notwithstanding the provisions of the paragraph above, the Contractor and CTA, may at the CTA's option, arrange for the performance of necessary modification, retrofit, or warranty work by the CTA at the expense of the Contractor. The CTA specifically reserves the right of first refusal on any modification, retrofit, or warranty work required on installations completed under this Contract.

When CTA labor or facilities are used in the performance of the obligations of the Contractor with mutual agreement or as permitted by terms of the Contract, the Contractor shall reimburse CTA for the cost of such work as follows:

1. For labor supplied by the CTA at the average hourly rate then in effect for the type work performed. If work is actually performed on overtime, CTA overtime wage rate will apply.
2. For an amount applied to its wage cost to cover the cost of fringe benefits.
3. For CTA supplied materials, specialties, equipment and accessories in the amount which is the sum of the purchase price plus the then current rate for handling charges plus delivery charges.
4. For shop overhead.
5. For an amount for General and Administrative Expenses.

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CTA LABOR, MATERIALS AND FACILITIES (continued)

The rate to be applied for fringe benefits, supervision and accounting, material handling charges, use of shop facilities and general and administrative expenses shall be those rates periodically developed and published on the basis of actual experience by the CTA's Financial Reporting and Analysis Section.

GUARANTEES

In addition to the warranties and remedies provided by law, the Contractor expressly warrants as follows:

1. The Contractor shall warrant and guarantee that the equipment supplied on this contract is free from defects in material and workmanship and properly designed in conformance with the Contract Documents to provide the services and functions therein described for a period of two (2) years after receipt of equipment.
2. In addition to the warranty and guarantee stated above, the Contractor shall further warrant and guarantee that the equipment provides reliable low maintenance operation. This warranty and guarantee shall apply for the time periods and conditions which follow:
 - a. In the event any line replaceable unit in a new system shall have a failure rate of ten percent (10%) or greater during any twelve (12) month period of the guarantee established in Paragraph 1 above or the reliability period established in this Paragraph 2, the Contractor agrees that the unit is unsuitable for the application and shall promptly replace such unit with units of improved reliability. The guarantee period for the improved units shall extend for a period of twelve (12) months from date of installation.
 - b. Line replaceable units include those items CTA regularly and commonly changes as part of its routine maintenance and troubleshooting procedures in the Rail Terminals. In the case that the line replaceable unit is electronic in nature even if it contains electro-mechanical devices, the extended warranty shall apply to the entire line replaceable unit, regardless of what components were replaced.
 - c. In the case that the line replaceable unit is mechanical or electro-mechanical in nature and includes moving, wearing components, and the modification required disassembly and repair or replacement of any of the moving, wearing components, the extended warranty shall apply to the entire unit. If no disassembly or repair or replacement of moving, wearing components was required either to correct the failure rate or to repair consequential damage, the extended warranty shall apply only to the components replaced.

**SPECIAL CONDITIONS
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GUARANTEES (continued)

- d. In the case that the line replaceable unit is comprised of several assemblies or sub-assemblies, removal on non-defective assemblies or sub-assemblies to gain access to or to allow repair of the defective unit shall not constitute disassembly of moving, wearing components and shall not require warranty extension of the items removed.
3. Contractor's warranty and guarantee is subject to the condition that the CTA has reasonably complied with the requirement of any maintenance manual furnished by the Contractor covering the item in respect of which the claim is made provided the manual reflects standard industry practice and is geared to the CTA's normal maintenance practices. Should a part, component or item that is considered a consumable fail at the end of its normal service life, and such failure shall occur prior to the expiration of the guarantee periods above, such component or item shall be deemed to be outside the coverage of the guarantee.
4. During the period of the guarantee, the Engineer will promptly notify the Contractor in writing of each claim and the Contractor shall promptly remove and replace with new parts, or if agreed to by the Engineer, remove, repair and replace (or repair in place) all parts which fail under the terms of this Guarantee Section, including parts damages as a result of defect in, or malfunction of other car parts, all without any expense to CTA.

In the event the Contractor fails to comply promptly with the written order of the Engineer to repair, replace or correct damaged or defective work, materials, specialties, equipment and accessories, the Procurement Administrator shall, upon written notice to the Contractor, have authority to deduct the cost of such repair, replacement or correction from any compensation due or to become due the Contractor. In the event the Contractor has been paid, the Contractor agrees to reimburse CTA for the cost thereof.

5. The CTA and the Contractor agree that this Warranty Clause is fully understood by the parties, and that the price of the equipment and installation and the other mutual agreements of the parties set forth in this Agreement were arrived at in consideration of the provisions of this clause, specifically including the waiver, release and renunciation by the CTA set forth herein.

POST AWARD MEETING

As soon as possible, subsequent to the award of the contract, Contractor will meet with the Project Manager, the Manager, Technical Services Rail, and the Procurement Administrator for this requirement. The purpose of this meeting is to insure that all parties understand the project, the delivery schedules, the procedures and methods as stated in the contract documents. Also, any remaining questions by any of the parties will be answered and/or clarified at this time.

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PACKAGING

Material that is not properly packaged and does not have manufacturer's part number, or fails to be accompanied by a Bill of Lading may be returned to the Contractor at no cost to CTA. Unless otherwise approved in this Contract, shipments shall be made on a commercial Bill of Lading. An original and three copies of Bill of Lading or equivalent, receipted by the carrier, shall be furnished by Contractor to CTA at times of shipment.

GOVERNING LAW AND CHOICE OF FORUM

The Contractor hereby irrevocably submits to the original jurisdiction of those State or Federal courts located within the County of Cook, State of Illinois, with regard to any controversy arising out of, relating to, or in any way concerning the execution or performance of this Contract. The Contractor agrees that service of process on the Contractor may be made, at the option of the CTA, either by registered or certified mail addressed to the applicable office as provided for in this Contract, by registered or certified mail addressed to the office actually maintained by the Contractor, or by personal delivery on any officer, director, or managing or general agent of the Contractor. The Contract will be governed in accordance with the laws of the State of Illinois, without regard to choice of law principles.

CONFLICTS OF INTEREST

The Contractor covenants that it, its officers, directors and employees, and the officers, directors, and employees of such of its members if a joint venture, and subcontractors presently have no interest and must not acquire any interest, direct or indirect, in the Work to which this Contract pertains, which would conflict in any manner or degree with the performance of the Work hereunder. The Contractor further covenants that in the performance of this Contract, no person having any such interest must be employed by the Contractor.

The Contractor is prohibited from performing any work or services for the CTA under this contract that conflict with work or services that the Contractor performs under any other contract with the CTA. Such conflicts include, but are not limited to, design work for the Project under another contract, supervision or management for the Project under another contract, and review or audit work for the Project under another contract. The restrictions in this paragraph are applicable to all subcontractors. The Contractor has sole responsibility for compliance with this provision. Any violation of this provision is a material breach of the Contract, which is cause for termination.

PAYMENT TERMS

All payments shall be made as provided herein, less any amount to be withheld as provided.

The Contractor shall submit an invoice for each delivery of acceptable and approved material delivered. Invoices will be paid subsequent to formal acceptance of material by CTA. Original invoices shall be forwarded to CTA Accounts Payable Department, 567 West Lake, Chicago, Illinois 60661. Payments will be made in net thirty (30) calendar days after final acceptance of material or receipt of Contractor's invoice by CTA, or in accordance with the terms of Contractor's invoice, whichever is most favorable to the

**SPECIAL CONDITIONS
CONTRACT NO. C15RT101631000
SPECIFICATION NO. CTA 8303-15A**

PAYMENT TERMS (continued)

CTA. Payment date(s) shall be calculated from receipt of invoice or final acceptance of goods, whichever is later.

Invoices must be presented only by the vendor to which a purchase order is awarded. Invoices received from a third party will not be honored unless prior written approval from purchasing agent has been obtained.

The Chicago Transit Authority shall make progress payments to the Contractor for LED Run Number Sign Kits in accordance with the performance milestones set forth below.

Acceptance of these LED Run Number Sign Kits shall not relieve the Contractor of its responsibility for the furnishing of capital spares, manuals and training or inclusion of said materials as a deliverable element of the LED Run Number Sign Kits procured in accordance with the requirements of the Contract.

The performance milestones and payment limits shall be as follows:

Milestone	Description	Payment
1	Acceptance of the LED Run Number Sign Kits.	Ninety-seven-percent (97%) of the unit price as listed on Bid Proposal Page (P-1) in accordance with this contract.
2	Acceptance of the capital spares, drawings/diagrams, manuals/catalogs, testing equipment, training and all other deliverables listed in CTA Specification No. 8303-15A.	Three (3%) of remaining deliverables.

QUALITY

The standard quality for this specification is based on the detailed information supplied in the referenced specification. Competitive products will be compared to examples herein mentioned and will be considered as complying with this Specification if judged equal in performance, design, construction, sturdiness and overall workmanship.

WARRANTY

Contractor warrants that all goods and/or services furnished hereunder will be free from defects of material and workmanship; will conform to all applicable samples, specifications and/or drawings; and will be fit for the purpose of which purchased. Seller's warranties, together with its service warranties and guarantees, if any, shall run to the CTA. All goods and services will be subject to inspection by an authorized CTA representative within a reasonable time after receipt or completion. At CTA's option, the CTA may return any nonconforming or defective goods to Contractor or require correction or replacement at Contractor's risk and expense. Acceptance of goods and services by the CTA or payment shall not relieve Contractor of its responsibilities there under. In the event the Detail Specification has additional warranty provisions, then the most stringent warranty shall prevail.

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WARRANTY CLAIMS

In the event that a vendor fails to pay approved or partially approved warranty claims within sixty (60) days of submission, the CTA shall send the vendor written notice seeking immediate payment of the outstanding claims. If the vendor fails to pay the outstanding claims within five (5) days of vendor's receipt of the written notice, the Purchasing Department shall issue a notice to cure letter providing the vendor with ten (10) days to cure the default. If the vendor fails to cure the default, the CTA may, at its discretion, deduct the CTA's costs from 1) any unpaid contract funds, 2) any contract retainage amounts or 3) a maintenance or performance bond. If the deductions do not fully satisfy the outstanding claims, the CTA may seek additional remedies. All remedies shall be inclusive of applicable interest payments.

BID INQUIRIES

Refer all inquiries about this procurement to Luis Bejar, Senior Procurement Administrator, telephone (312) 681-2468. E-mail: lbejar@transitchicago.com

ATTACHMENT B
CHICAGO TRANSIT AUTHORITY
DETAIL SPECIFICATION
FOR
3-DIGIT RUN NUMBER SIGN; LIGHT EMITTING DIODE (LED) TYPE DISPLAY,
COMPLETE KIT, RAPID TRANSIT RAILCAR APPLICATION
CTA SPECIFICATION NO. 8303-15A

1. SCOPE

- 1.1 This specification will describe the requirements for a contractor to furnish and deliver a new, complete, amber color, light emitting diode (LED) type, 3-digit run number sign, including sign boxes, control panels, manuals, and test equipment, to be used in the mid-life rehabilitation of Series 3200 rapid transit railcars in operation at the Chicago Transit Authority (CTA).

2. GENERAL INFORMATION

- 2.1 The latest version or revision of an applicable specification, drawing, standard, regulation, etc. at the time a given Invitation for Bid (IFB) is posted shall apply.
- 2.2 See the Contract Documents for the quantity of destination sign kits the CTA will require for a given contract. Each complete run number sign kit furnished shall be for one (1) CTA 3200 Series railcar.
- 2.3 See the Contract Documents for the location the required run number sign kits shall be shipped to for a given contract.
- 2.4 One (1) complete run number sign kit furnished shall be designated as a permanent training unit, and will be further detailed in a later section of this specification.

3. GENERAL REQUIREMENTS

- 3.1 All run number sign kits and equipment furnished shall be uniform. Any change or changes made to a kit shall be fully incorporated into all kits furnished, unless agreed to otherwise by the CTA Engineer.

3. GENERAL REQUIREMENTS (Continued)

- 3.2 All drawings, documents, reports, and other applicable items furnished to the CTA shall use customary U.S. units of measure. If drawings, tests, or other documents initially utilized a metric unit of measure, they shall also present the equivalent value of the appropriate U.S. unit of measure. Electrical and electronic symbols on all drawings shall conform to IEC or ANSI standards.
- 3.3 All documents, reports, and other items furnished to the CTA shall be prepared in clear, idiomatic, American English, and not be a literal translation to American English from another language.
- 3.4 All letters and reports shall be submitted on standard 8.5 inch by 11 inch paper, and all drawings shall be prepared to customary U.S. size standards.
- 3.5 The contractor shall furnish the CTA Engineer two (2) sets of full size paper prints of the latest revision of all drawings relating to the general layout, arrangement, wiring, and installation of the run number sign kit, as well as detail wiring and schematic diagrams of the run number sign kit. In addition, the contractor shall furnish drawings as AutoCAD electronic files on CD / DVD.
- 3.6 The contractor shall deliver to the CTA Engineer ten (10) printed sets of all parts catalogs and maintenance and instruction manuals. Manuals shall be printed on 8.5 inch by 11 inch size pages, punched with three (3) 5/16 inch diameter holes on 4.25 inch center-to-center spacing. Each page is to have a plastic reinforced edge. The manuals shall be assembled into heavy-duty binders suitable for extended shop use. The spine of each binder shall identify the manual by category and contents. Contractor shall insure all parts listed in a manual are fully identified, and that all operating information and parameters are furnished. The manuals shall also be delivered to the CTA Engineer on CD / DVD for use on a CTA personal computer (PC), which utilizes Microsoft® Office brand software. Manuals furnished shall be specific to the destination sign furnished to the CTA and not generic in nature. Manuals furnished shall follow the following guidelines, unless agreed upon in writing otherwise by the CTA Engineer.
- A) The maintenance concept shall address components to the lowest level identified in the parts catalog. The manuals shall contain a detailed analysis of each component, so that applicable personnel can effectively inspect, diagnose, service, maintain, adjust, repair, and replace equipment. Where interfaces occur, a cross reference shall be made to the appropriate location. The following topics shall be covered:
- 1) General – This shall include a basic description of the system and specifications on the major components in the system. Interfaces shall be identified and explained.

3. GENERAL REQUIREMENTS (Continued)

- 2) Theory of Operation – This shall include basic theory and the specifics of the system, and the relationships of assemblies, sub-assemblies, and components, with an explanation and analysis of their functions to the smallest replaceable component.
- 3) Operating Procedures – This shall include the location and functional descriptions of all controls, monitors, and indicators.
- 4) Diagnostics – This shall include a list in tabular format of symptoms, causes of malfunction or improper operation, and probable remedies to the smallest line replaceable component level or printed circuit board (PCB) level. Logic / flow charts may be used to assist in the diagnostics, but must reflect the most efficient and effective logic steps, and not simply the tracing of schematics.
- 5) Corrective Maintenance – This shall include step-by-step removal, replacement, and adjustment procedures to the smallest line replaceable component level. Detailed procedures shall be provided to adjust any destination sign unit that has been replaced. In addition, charts of families of consumables, including attaching parts, locations, log numbers or other information, and space for notes, shall be included. Consumables include lamps, filters, contact tips, fuses, and any other items as determined by the contractor and the CTA Engineer as being desirable for routine maintenance activity.
- 6) Preventive Maintenance – This shall include a list in tabular format of all inspection requirements, including cleaning, component replacement and repair schedule, required adjustments, limits, tolerances, optimum test point readings, calibration charts, and procedures in performing the preventive maintenance.
- 7) Shop Corrective Repair – This shall include detailed diagnostic procedures for assemblies and sub-assemblies, and step-by-step removal, overhaul, replacement, and adjustment procedures to the smallest replaceable component. Detailed test and adjustment procedures shall be provided for the complete destination sign, and for all of its assemblies and sub-assemblies.

3. GENERAL REQUIREMENTS (Continued)

B) The parts manual shall enumerate and describe every part to the lowest level of replaceable component, including active and passive electronic components. They shall include component name, symbol, function, rating, tolerance, manufacturer or supplier, name and address of manufacturer or supplier, manufacturer / supplier part number, commercial equivalents, and quantity per assembly or sub-assembly. The manual shall include exploded view diagrams illustrating and indexing every part. Each diagram shall be accompanied by a page listing every item indexed in the associated diagram and providing complete ordering data for each item. Diagrams and exploded views shall be provided to identify the appropriate location of parts within a sub-assembly, and that of the sub-assembly within the next larger assembly. The part manual(s) shall include an open column adjacent to the manufacturer's or supplier's part number column for the eventual inclusion of the given part's assigned CTA Item Number. In addition, the same part number information shall be provided on CD / DVD in Microsoft® Excel spreadsheet format. The contractor shall submit two (2) draft copies of each manual within one hundred eighty (180) calendar days after a written notice to proceed for review has been made by the CTA Engineer. A copy of each manual will be returned with comments by the CTA Engineer to the contractor for changes to be made. Final manuals shall be delivered as soon as they are available, but no later than three (3) months after delivery of the first production run number sign kit to the CTA. Contractor shall be responsible for providing updates and corrections to the manuals furnished for the duration of the warranty period at no additional cost to the CTA.

- 3.7 The contractor shall assign a main contact person for a given run number sign kit contract the contractor has with the CTA. The person designated by the contractor shall be knowledgeable on the run number sign kits being furnished, be readily available to answer questions by the CTA, and to assist in all aspects of the contract.

3. GENERAL REQUIREMENTS (Continued)

- 3.8 The contractor shall conduct maintenance training courses on CTA property to instruct CTA training and maintenance personnel in the proper techniques and procedures for the operation and maintenance of the run number sign and its bench test equipment. This instruction shall cover component part familiarization, operation, repair, maintenance, and troubleshooting procedures.

The contractor shall coordinate the training with the CTA Railcar Maintenance Training Department through the CTA Engineer. Run number sign training shall commence no later than ninety (90) calendar days after the first production unit is delivered, and bench test equipment training shall commence no later than sixty (60) days after the equipment is delivered and installed.

Training outlines shall be submitted to the CTA for review at least sixty (60) calendar days before training is to begin, to allow time for any revisions deemed necessary by the CTA. An actual complete run number sign kit shall be provided as a training aid for use at the CTA Railcar Maintenance Training Center. The contractor shall assist CTA Railcar Maintenance Training Center personnel in setting up the run number sign set-up and getting it operating to factory specifications.

Copies of all training material and any training aids shall become the property of CTA at the conclusion of the training courses. Electronic versions of the training material, compatible with Microsoft® Powerpoint or other common software, shall be furnished to the CTA and become property of the CTA. The contractor will provide appropriate software to the CTA if Microsoft® Brand software cannot be utilized to display and modify the training materials.

If the run number sign kit furnished under a given contract is similar to a run number sign set-up already in service at the CTA, the training courses shall also cover the differences in hardware, software, maintenance procedures, and techniques between the two types of run number sign set-ups.

It is expected that four (4) groups of eight (8) persons for a total of thirty-two (32) persons will receive run number sign training, and four (4) persons will receive bench test equipment training.

- 3.9 The contractor shall keep a log for each run number sign kit. The log shall contain the list of serial-numbered components and the serial numbers for that unit.

3. GENERAL REQUIREMENTS (Continued)

- 3.10 The contractor shall construct an actual size mock-up / mock-ups of a run number sign and perform a trial fit for both boxes on a 3200 Series car at the CTA to insure the mounting points and wiring interfaces are correct. Multiple trial fits may be required in order to get all the interfaces correct.
- 3.11 Pre-Production Testing
- 3.11.1 The contractor shall ship four (4) complete pre-production run number sign kits to the CTA within six (6) months after a notice to proceed (NTP) has been issued by the CTA Engineer. These four (4) complete run number sign kits shall outfit two (2) married pairs of railcars (Or four (4) individual railcars). These pre-production run number sign kits will be installed by the CTA on existing CTA 3200 Series railcars and will be tested in regular railcar revenue service for six (6) months, including winter and summer seasons, in order to evaluate all aspects of the sign's design and operation, and before any production run number sign kits are shipped to the CTA. The CTA Engineer reserves the right to shorten the six (6) month test period. Any deficiencies found in the design or operation of any pre-production run number sign kit furnished shall be corrected by the contractor before the shipping of any production run number sign kit commences. Any modification(s) made to a pre-production sign kit shall be fully incorporated into all run number sign kits furnished.
- 3.11.2 The pre-production run number sign kits furnished will be operated and maintained as any other run number sign units found in existing CTA railcars. Efforts will be made to ensure their daily operation.
- 3.11.3 All other work performed on the railcars during the testing period shall be subject to the provisions listed in the Special Conditions section: CTA Labor, Materials, and Facilities.
- 3.11.4 If an abnormal function or failure occurs during the test period, it shall be fully investigated by the contractor to determine if it resulted from a design, manufacturing, implementation, etc., deficiency. If, in the judgment of the CTA Engineer, a deficiency is identified, the affected pre-production run number sign kit(s) shall be revised accordingly by the contractor, and then returned to service for the remaining part of the test period.
- 3.11.5 If, in the judgment of the CTA Engineer, an extension to the test period for the run number signs is necessary, the test period may be extended up to an additional six (6) months.

3. GENERAL REQUIREMENTS (Continued)

- 3.11.6 When the pre-production run number sign kits have successfully completed their testing period, and any possible extensions thereof, the CTA Engineer shall authorize the contractor to commence shipment of the remaining run number sign kits on a given purchase order. Successful completion of the testing period shall not relieve the contractor of responsibilities for compliance with all requirements of the specification.
- 3.11.7 If any run number sign kit involved in the testing period is out of service awaiting engineering, personnel, parts, modifications, etc., for a period exceeding ten (10) calendar days total during the testing period, the testing period shall be extended by the total length of time the least available run number sign unit was out of service, in order to ensure adequate operational experience with all aspects of the railcar.
- 3.12 Potential contractors shall present the following for evaluation by the CTA in the bid response package, or within three (3) business days if so requested by the CTA, a complete technical description of the proposed LED run number sign kit, to include but not be limited to; physical packaging arrangements, dimensions estimated weights, electrical power requirements, LED Matrix dimensions, material specifications, proposed method of run number entry and a proposed project timeline.

4. EQUIPMENT DESCRIPTION

4.1 General

- 4.1.1 Each railcar is presently equipped with one 3-digit run number sign box having curtain-type signage, incandescent back lighting and manual input. These existing run number sign boxes will be removed and replaced by the CTA in applicable 3200 Series railcars with the new run number sign kits purchased under this specification and a given purchase order.
- 4.1.2 The 3- digit run number sign shall use high-intensity amber LED technology. Sign characters shall be nominal four-inches (4") high and the LED matrix shall be no less than 16 high and 36 wide. Each digit of the run number sign shall be designed to display the numbers 0-9 and the letter 'X'.
- 4.1.3 The sign shall be mounted with a hinge and securement that shall keep the sign tight to the glass. Rubber bumpers shall be provided to cushion impacts on contact with the glass. The sign box shall have a front glass and be gasketed to exclude dust, dirt and water.

4. EQUIPMENT DESCRIPTION (Continued)

- 4.1.4 A red indicator light fully integrated into the box shall be arranged to be seen through the front windshield as on CTA's 3200 and 5000 Series cars. The light shall be mounted behind the front face of the box to preclude the red lens hitting the windshield if the bumpers have compressed.
- 4.1.4 The new run number sign boxes shall mount to the existing railcar's mounting points without any modifications to the railcar or to existing mounting brackets. The size and shape of the run number sign units shall be carefully considered in order to fit within the space available, and readily connect to the existing railcar's wiring harness.
- 4.1.5 The run number to be displayed on the run number sign shall be entered on a numerical key pad. The key pad shall use ruggedized and environmentally sealed components specifically designed to be used in rail car service. The key pad shall include the numbers 0-9, inclusive, as well as "Enter" and "Clear" keys to clear the run number display. Other keys may be added during the design review for the run number sign. The keypad shall also include a small display showing the run number as it is being keyed in.
- 4.1.6 The keypad shall be located within the run number sign box. The keypad shall be secured from unauthorized access and only be accessed using the CTA's standard MUDC key.
- 4.1.7 Alternative methods/arrangements to input the run number to be displayed may be proposed and will be reviewed by the Engineer.
- 4.1.8 The new run number signs shall turn ON whenever the master controller is active as on existing 3200 series cars or when an end of train signal is received. However, the new signs shall be designed to display ONLY when a run number has been entered into the key pad.
- 4.1.9 Displayed signage characters shall conform to ADA viewing requirements.
- 4.1.10 Any additional wiring or equipment/components that are needed to install the LED run number signs into the 3200 Series rail car shall be included within the run number sign kit.
- 4.1.11 The contractor will be responsible for reviewing the existing fuses and circuit breakers on the 3200 Series railcars to ensure that they are suitable to protect the new run number sign. If the circuit protection devices are not suitable to protect the new run number sign the contractor shall include replacement devices into the run number kit.

4. EQUIPMENT DESCRIPTION (Continued)

- 4.1.12 The proposed run number sign and all of its operational and design details, including diagnostics, programming, and the sign control, shall be reviewed by the CTA Engineer.
- 4.2 Bench Test Equipment
 - 4.2.1 Contractor shall furnish one (1) bench test equipment set with all standard cards/boards, meters, oscillators, power supplies, displays, and other equipment necessary for complete verification of operation, and for adjustment of the cards/boards and control modules in each run number sign.
 - 4.2.2 If existing CTA bench test equipment is fully compatible with the new equipment being furnished, then no additional bench test equipment is required. However, the contractor shall make any and all modifications required to existing bench test equipment in order for the existing bench test equipment to properly test the new equipment to be furnished under this specification and a given contract.
 - 4.2.3 Any modifications required to any of the bench test equipment during the warranty period, as a result of changes in railcar system equipment or software subsequent to the delivery of the equipment to the CTA, shall be performed by the contractor at no additional cost to the CTA.
 - 4.2.4 Contractor shall furnish training, as well as maintenance and parts manuals, for the bench test equipment, at least equal to that provided for the run number sign units themselves.
 - 4.2.5 The bench test equipment to be furnished, including instructions and procedures, shall be reviewed by the CTA Engineer.

5. ELECTRICAL – GENERAL

- 5.1 Low Voltage DC Operating Parameters
 - 5.1.1 All low voltage, nominal 37.5 VDC, operated devices shall be capable of operating continuously and performing their functions over a continuous operating voltage range of 23 VDC to 42.5 VDC, as designated in Table 4 of IEEE Std. 1476-2000, except as otherwise specified, measured at the load.
 - 5.1.2 All low voltage devices shall withstand input voltage transients in accordance with the requirements of IEEE Std. 1476-2000, and thereafter operate properly when the voltage is within the range of 23 VDC to 42.5 VDC.

5. ELECTRICAL – GENERAL (Continued)

5.2 High Voltage DC Operating Parameters

5.2.1 All high voltage, nominal 600 VDC, operated devices shall be capable of operating continuously and performing their function over a continuous operating voltage range of 400 VDC to 800 VDC measured at the main knife switch.

5.2.2 All high voltage devices shall be compliant with and tested to meet the transient overvoltage requirements of IEC-61287-1, Section 2.1.1.9.d, *Supply Line Overvoltages*. In addition, they shall withstand all railcar and wayside generated voltage excursions up to 1000 VDC for a minimum of five (5) seconds and up to 3000 VDC for up to five hundred (500) microseconds duration without sustaining any damage or interruption of operation.

5.3 Alternating Current (AC) Operating Parameters

5.3.1 All AC operated devices shall be capable of operating continuously and performing their functions over a range of $\pm 10\%$ from a nominal 230 VAC potential, and $\pm 10\%$ from a nominal 60 Hz frequency, when measured at the railcar's auxiliary inverter output.

5.4 Device Protection

5.4.1 Adequate protection shall be provided for all devices against all voltage and frequency variations to be found on the CTA system and/or developed by the railcar equipment. All contactor and relay coils shall be suppressed with an appropriate device reviewed by the CTA Engineer.

5.5 Bus Bars

5.5.1 There shall be no exposed bus bars other than ground or B-. Bus bars other than ground or B- shall be insulated in a manner reviewed by the CTA Engineer. Bus bars shall be of copper material.

5.6 Fuses and Fuse Holders

5.6.1 All fuses shall be reviewed by the CTA Engineer and shall be mounted in fuse holders, unless agreed to otherwise by the CTA Engineer.

5. ELECTRICAL – GENERAL (Continued)

- 5.6.2 Fuses shall be used to protect 600 VDC circuits, unless otherwise specified. 600 VDC fuses shall be of the indicator type, Littelfuse® Type IDSR or equivalent.
- 5.6.3 All fuse installations shall be reviewed by the CTA Engineer.
- 5.7 Relays and Contactors
 - 5.7.1 All relays and contactors shall be reviewed by the CTA Engineer.
- 5.8 Diodes
 - 5.8.1 The use of diodes for circuit isolation, signal division, or backfeed prevention shall be discouraged. Diodes having any contact with trainline or railcar carbody wiring outside an electronic system shall have PIV of not less than three (3) times the applicable circuit voltage, or one thousand (1000) volts, whichever is greater, and shall have a current rating at least 200% larger than required. Diodes in these situations shall be reviewed by the CTA Engineer.
- 5.9 Opto-Couplers
 - 5.9.1 Opto-couplers may be used to isolate sensitive electronic circuits from trainline and railcar carbody wiring.
- 5.10 Electronic Circuit Sensitivity
 - 5.10.1 Electronic circuits that utilize trainline or railcar carbody wiring signals shall be particularly designed to be immune to leakages, spikes, surges, and other variations that can regularly occur, and shall not recognize any spurious voltage resulting from leakage or induction as a valid signal. The steps taken to meet these requirements shall be reviewed by the CTA Engineer.
- 5.11 Electromagnetic Interference
 - 5.11.1 The contractor shall ensure that electrical and electronic systems furnished under this specification shall properly operate in their operational environments, without either suffering, or causing harm because of, unintentional electromagnetic interference, either radiated and/or conducted.

6. ELECTRICAL – RAILCAR WIRING

6.1 Wire Size

6.1.1 Railcar carbody wire shall not be smaller than size 16 AWG. Special care shall be taken to provide physical protection for all wire to prevent damage while pulling, or damage from vibration, especially at terminals. Wiring for interconnection of various pieces of special apparatus may be of different sizes, stranding, and shielding as recommended by the various manufacturers, and reviewed by the CTA Engineer.

6.1.2 All wiring smaller than size 16 AWG shall require review by the CTA Engineer. Electronic card wiring shall be no smaller than size 26 AWG and electronic panel wiring shall be no smaller than size 22 AWG.

6.2 Wire Harnesses and Layout

6.2.1 Insofar as practical, all wiring shall be fabricated on the bench into convenient units, and then installed as prefabricated groupings in standardized locations.

6.2.2 Harnesses secured with Nylon material wire/cable ties shall have the Nylon material wire/cable ties trimmed and located to eliminate hazard to personnel from sharp edges. Nylon material wire/cable ties shall be applied with the proper tool to prevent damage to wire insulation the tie may be in contact with.

6.2.3 No wire harness shall lie on the bottom of any enclosure.

6.3 Wire Segregation

6.3.1 Wires carrying different types of current, or having different potentials, shall not be carried in the same conduit, or in unsegregated ducts, or be cabled together.

6.4 Wire Markers

6.4.1 Each wire shall be plainly and permanently marked within one (1) inch of each of its terminations with a wire tag. All terminals of all terminal boards and all studs shall be clearly and permanently marked with a marker showing the designation of the wires to be attached to each terminal. Each terminal board shall have a unique identifying number.

6.4.2 Wire markers shall be white in color having black color numbering/lettering on them for contrast. Wire markers and their markings, and the marking of terminal boards, shall be reviewed by the CTA Engineer.

6. ELECTRICAL – RAILCAR WIRING (Continued)

- 6.4.3 All wires on any terminal shall have the same designation. When more than one (1) wire carries the same designation, e.g., "B-", each wire shall also carry a unique numeric identifier. Each wire shall have only one (1) designation between circuit-interrupting or power-consuming devices.
- 6.5 Wire Physical Protection
- 6.5.1 Where wires enter a conduit or duct, or pass through any partition, rubber or phenolic bushings, or plastic or metal bell mouths, shall be provided to prevent abrasion of the wire's insulation. Where wires pass through partitions or any metal plate, the protection shall prevent wire insulation chafing on either side of the partition or plate. All conduit ends shall be reamed before installation to remove sharp edges and burrs. Open or loom wiring must have protection wherever it could come in contact with structure edges to prevent chafing or cutting. Wire protection items are to be installed before any wiring is installed.
- 6.5.2 Where watertight cable glands are used, they shall be equipped with seal washers between the gland body and the panel through which they pass. The use of extra sealer is not permitted. Cable glands shall be sized to clear the cable terminations, or they shall be mounted on gasketed mounting plates to permit removal without re-terminating the cables.
- 6.6 Plugs and Connectors
- 6.6.1 All plugs and connectors, unless otherwise agreed to by CTA Engineer, shall be multi-pin, cylindrical, with positive lock bayonet coupling and visual indication of full mating, to improve ease of removal and reduce wiring problems.
- 6.6.2 The connectors shall be, or be equivalent to, CIR Series connectors manufactured by ITT Veam Corporation. Connectors shall be reviewed by the CTA Engineer.
- 6.6.3 Plugs and connectors for ethernet/IP circuits or network signals shall be metal, heavy duty, D coded M12 or Harting type suitable for applications on a vibrating object. Standard commercial plastic connectors and plugs shall not be permitted.
- 6.6.4 All plugs and connectors shall be reviewed by the CTA Engineer.

6. ELECTRICAL – RAILCAR WIRING (Continued)

6.7 Portable Test Unit (PTU) Plugs and Connectors

6.7.1 The receptacles applied to each micro-processor controlled system for PTU access to the controls, and the plugs applied to the cables of the PTUs, shall be rugged, heavy-duty, and suitable for application on a railcar. All PTU plugs and connectors shall be reviewed by the CTA Engineer.

6.8 Printed Circuit Boards (PCBs)

6.8.1 All printed circuits boards (PCBs) are to be made of FR-4 circuit board material. Applicable PCB locations shall have plated-through holes for the leads of through-hole components that are mounted on the PCB. All PCBs shall have a solder mask, and identification of components on the PCB shall be inked in white, or a color in high contrast relative to the PCB's solder mask color.

6.8.2 Through-hole resistors on a PCB having a power rating greater than 1 Watt shall have the resistor body raised up from the PCB when its leads are being soldered to the PCB.

6.8.3 All PCBs used shall be of the "plug-in" type, except where agreed to otherwise by the CTA Engineer.

6.8.4 Plug-in PCBs shall be designed with keyed plugs and sockets to prevent incorrect insertion of a PCB into a given header, rack, or receiving unit. Exposed pin type plugs shall not be permitted. Each PCB shall be labeled and its PCB header or rack identically labeled to identify which location each PCB correctly belongs. In addition, each PCB shall have a permanently affixed serial number and bar code.

6.8.5 Appropriate electrical contact areas on a given PCB, and for its header or rack receiving the PCB, shall be gold-plated for minimum contact resistance, minimum surface corrosion, and long-term contact reliability.

6.8.6 All PCB soldering operations shall only have one of the following appropriate solder types used, using a rosin core flux, for the soldering of applicable components to the PCB: "Sn 60 / Pb 40" ; "Sn 63 / Pb 37" ; "Sn 62 / Pb 36 / Ag 2".

6. ELECTRICAL – RAILCAR WIRING (Continued)

- 6.8.7 After a given PCB has been completely “stuffed” with components, the applicable surface areas of each side of the PCB shall receive a coat of conformal coating after all soldering fluxes have been removed. The conformal coating used shall be able to be readily removed from the PCB, if required, using an electrical contact cleaner or solder flux remover solvent, and then be able to be “touched-up” with a spray-on conformal coating after a given PCB repair or given test has been completed.
- 6.8.8 Applicable electrical components on a PCB shall be properly soldered and/or mounted in order to prevent component failure due to vibration.
- 6.8.9 A sample of each completely stuffed, ready for mounting/insertion, PCB that will be found in a complete destination sign set-up shall be submitted to the CTA Engineer for review.
- 6.9 Microprocessors – Application Features
- 6.9.1 Applicable microprocessors shall be reprogrammable from the portable test units (PTUs) without removing devices or PCBs, unless specifically agreed to by the CTA Engineer.
- 6.9.2 The PTU software shall be a stand-alone application that shall not be dependent on the software in the unit being monitored. When software revisions are made to the various systems, no changes shall be required to the PTU software to function properly.
- 6.9.3 The CPU and associated logic packages shall be housed in an EMI shielding metal enclosure, unless otherwise agreed to by the CTA Engineer. Access shall be gained by quick-acting fasteners which do not require special tools to operate. It shall not be necessary to remove EPROMs from the PCB in order to reprogram them, unless specifically agreed to by the CTA Engineer.
- 6.9.4 All signals applied to a given microprocessor, and all outputs from the input-output port, shall be through isolation buffers located external to the microprocessor. The buffers shall:
- a) Protect and isolate the microprocessor from damage due to over voltage, under voltage, voltage transients, shorts, and opens.
 - b) Perform necessary voltage translations.
 - c) Remove noise and undesired signals.

6. ELECTRICAL – RAILCAR WIRING (Continued)

- d) Limit, process, discriminate, and format those signals, such as speed sensor input, display drivers, and code rate input, which, due to their nature, might cause an excessive amount of throughput for a given microprocessor.
- 6.9.5 Batteries, if used, shall not be soldered to PCBs, but mounted in holders reviewed by the CTA Engineer.
- 6.9.6 Only one (1) battery setup shall be permitted per system unless explicitly agreed to by the CTA Engineer. Systems shall be designed to share a battery setup to prevent battery proliferation.
- 6.9.7 Battery type used shall be readily available in the USA marketplace.
- 6.9.8 Non-volatile memory components shall not require a battery or other device requiring periodic replacement.
- 6.10 Microprocessors – Software
 - 6.10.1 The microprocessor software shall be structured to clearly identify and provide all of the following functions.
 - a) Initialization - Routines that are required to restart the microprocessor and prepare the hardware for correct operation.
 - b) Discrete Logic Functions - A separate and distinct routine for each and every major logic function, or signal processing, that the microprocessor system is to perform.
 - c) Executive - Routines which link the subroutines into a system.
 - d) Self-Check and Monitor - Routines within the normal flow and operation of the microprocessor system which continually perform a self-check, provide an external indication of the operational status, and provide an indication of data values.
 - e) Diagnostics - Routines which will not disrupt the normal program flow or timing, but provide diagnostic information of system operation.

6. ELECTRICAL – RAILCAR WIRING (Continued)

6.11 Microprocessors – Software Support

- 6.11.1 All non-commercial, project specific software shall be placed in escrow and shall become the property of the CTA should the original equipment manufacturer (OEM), or the OEM's successor(s), cease to support it. The escrow period shall be for a minimum of twenty (20) years after the date of issuance of a given purchase order by the CTA.

7. MATERIALS & WORKMANSHIP

7.1 General

- 7.1.1 All material entering into the manufacturing of the equipment shall be of first-class quality. All workmanship shall be high grade and shall conform to the best manufacturing practices in all respects.
- 7.1.2 All materials shall conform to applicable ANSI, ASTM, Federal Specifications, or other standards as agreed to by the CTA Engineer. Cases of conflict between specifications shall be brought to the attention of the CTA Engineer for review.
- 7.1.3 All tests shall be conducted using U.S. customary units of measure, or shall be converted and reported in U.S. customary units of measure.
- 7.1.4 All materials intended for use in CTA railcars shall be appropriately marked and/or stored to be readily identified, and shall be adequately protected during handling and storage during all stages of the manufacturing process.
- 7.1.5 All metal fastening components, such as, but not necessarily limited to, screws, bolts, nuts, and washers, shall conform to applicable ANSI standards and, unless made of stainless steel material, shall be appropriately plated or e-coated to resist corrosion and rust.
- a) All hardware of 0.25 inch diameter or larger shall have national coarse threads. Exceptions may be permitted, but requires the review of the CTA Engineer.
 - b) Bolts used with Nylon insert lock nuts shall be sized to extend at least two (2) full threads through the locking ring, but shall not be longer than the next standard length.
 - c) All bolts and cap screws shall have their head marked to indicate grade and material in accordance with SAE J429f.

7. MATERIALS & WORKMANSHIP (Continued)

- d) All nuts shall be marked to indicate their grade, in accordance with SAE J995b or Industrial Fasteners Institute IFI-100 Paragraph 3, for prevailing torque type steel lock nuts.
 - e) All hardware, such as bolts, cap screws, washers, nuts, etc., when used together at a given fastening point, shall be of the same grade
- 7.1.6 Components, plates, shields, or other parts which may need to be removed in order to perform maintenance or repair work shall not be secured with any self-tapping or sheet metal type fasteners, including speed nuts or J-nuts. The use of push-on "Tinnerman" type nuts is not permitted without review by the CTA Engineer.
- 7.1.7 Components, plates, shields, or other parts which may need to be removed in order to perform maintenance or repair work shall be interchangeable with another of the same identical item.
- 7.1.8 All bolts, nuts, cap screws, and machine screws shall be locked to prevent any loosening in service. Lock washers shall not bear against flat washers, but shall bear against non-rotating surfaces. The use of Loctite® or a similar type chemical compound shall not be permitted without review by the CTA Engineer.
- 7.1.9 Screws shall be driven in a manner to preclude damage to the screw's drive recess. No screws with damaged, burred, or rounded out drive recesses shall be allowed.
- 7.1.10 Manufacturer's trademarks shall not be visible.
- 7.1.11 Bolt holes shall be accurately located and aligned. When necessary during assembly, holes may be reamed round to specified size in position. Rounding out holes or elongating holes during assembly to affect alignment shall not be allowed.
- 7.1.12 All applicable stainless steel material components and parts shall be attached with stainless steel hardware.
- 7.1.13 All parts shall be free from sharp edges and burrs that might potentially injure a person or damage a person's clothing.

- 7. MATERIALS & WORKMANSHIP (Continued)
- 7.2 Aluminum
 - 7.2.1 All aluminum material used, if not hard anodized, shall be properly prepared, prior to being top-coated with acrylic enamel paint, or powder coated, on all of its applicable surfaces. Color to be used will be per the direction of the CTA Engineer.
 - 7.2.2 Wherever aluminum material contacts any other material, it shall be isolated, and the joint shall be sealed with suitable material(s) in order to prevent galvanic coupling.
 - 7.2.3 Aluminum material used that is anodized shall be hard anodized.
 - 7.2.4 Aluminum material shall be used only where specified, or where explicitly accepted by the CTA Engineer.
- 7.3 Wire and Cable
 - 7.3.1 Wire and cable sizes and stranding shall conform to ASTM specifications.
 - 7.3.2 All wire and cable electrical conductors (and shielding, if applicable) shall be of tin plated, soft, annealed copper and shall have the properties and characteristics specified in ASTM B-3 or B-33, latest revision.
 - 7.3.3 All wire and cable shall be of stranded conductor design. Use of wire or cable having a non-stranded (solid) conductor design shall be reviewed by the CTA Engineer.
- 7.4 Wire and Cable Insulation
 - 7.4.1 For wire and cable being size 8 AWG and smaller, its insulation shall be ETFE fluoropolymer per ASTM B-3159, latest revision, or irradiated cross-linked polyolefin (XLPO). For wire and cable being larger than size 8 AWG, its insulation shall be irradiated cross-linked polyolefin (XLPO).
 - 7.4.2 For wire and cable used in nominal 37.5 VDC or 120/240 VAC circuits, the insulation on the wire and cable shall have a rating of at least 600 VDC. For wire and cable used in nominal 600 VDC circuits, the insulation on the wire and cable shall have a rating of at least 2000 VDC.
 - 7.4.3 The insulation on wire and cable used shall have a temperature rating of at least 125° C.

7. MATERIALS & WORKMANSHP (Continued)

- 7.4.4 In areas where wires and cables will subjected to relatively high temperatures, the insulation on the wire and cable shall be silicone rubber, glass braid covered, or filled TFE, with a temperature rating of at least 260° C.
- 7.5 Wire and Cable Insulation Colors
 - 7.5.1 The color of the insulation on a given wire or cable shall be homogenous throughout the insulation and not just on the insulation's outer surface.
 - 7.5.2 The insulation on a given wire or cable shall be white color for relatively low voltage (37.5 VDC) circuits, black or dark gray color for relatively high voltage (600 VDC) circuits, and blue color for any wire or cable conducting an alternating current, unless agreed to otherwise by the CTA Engineer.
- 7.6 Carbody Multi-Conductor Cable
 - 7.6.1 All carbody multi-conductor cable shall be reviewed by the CTA Engineer.
 - 7.6.2 Wire sizes and shielding shall be as required by the subsystem being interconnected. Conductor insulation and shielding shall be selected for flexibility, durability, and suitability for the application.
 - 7.6.3 The outer jacket of a given carbody multi-conductor cable shall be neoprene or XLPO material.
 - 7.6.4 Color coding shall be per IPCEA No. S-19-81, NEMA WC-3, Section 5.6.2.1, Method 1, Table 2, including second tracer color for a cable having over twenty-one (21) individual conductors.
- 7.7 Wiring – General
 - 7.7.1 All wiring work shall be performed by, or under the direction of, experienced personnel. Appropriate tools for skinning/stripping insulation, cutting, tinning, soldering, and attaching mechanical or compression type terminals to conductors, shall be utilized.
 - 7.7.2 Care shall be utilized whenever insulation is being stripped from a given wire so as to avoid cutting or nicking of the copper conductor in a given wire, whether the wire has stranded conductors or a solid conductor.
 - 7.7.3 Wire in a duct and conduit shall be free of any kinks and insulation abrasions.

7. MATERIALS & WORKMANSHIP (Continued)

- 7.7.4 Any pulling compound used in a duct or conduit wire or cable installation, shall be non-conductive, non-odorous, not attract vermin, or attack the insulation of the wire or cable.
- 7.7.5 Any wire or cable which may be subjected to motion relative to its two (2) end connection points shall be appropriately supported, so as to eliminate any type of breakage or damage to the wire or cable, or its end connection points.
- 7.7.6 For a given wire or cable, sufficient slack shall be left to provide strain relief any time a wire or cable is pulled through a compartment.
- 7.7.7 A service loop sufficient for two re-terminations shall be provided for all wires of size 8 AWG or smaller terminating on a terminal board.
- 7.7.8 Wire or cable harnesses secured with Nylon material wire/cable ties shall have the wire/cable ties appropriately trimmed and located to eliminate any hazard to personnel from any remaining sharp edges. Nylon material wire/cable ties shall be installed with the proper tool to prevent damage to a given wire's outer insulation. Unless otherwise specified, Nylon material wire/cable ties used shall be black in color. Black color Nylon material wire/cable ties generally are more resistant to UV and ozone than natural color (Ivory) Nylon material wire/cable ties. The length and width of a given Nylon material wire/cable tie used shall be appropriate for the specific application.
- 7.7.9 No wire or cable harness shall lie on the bottom of any enclosure.
- 7.8 Solder and Soldering Process
 - 7.8.1 As for PCBs mentioned in Section 6.8.6 above, the solder types that can be used for making solder joints shall be: "Sn 60 / Pb 40"; "Sn 63 / Pb 37"; "Sn 62 / Pb 36 / Ag 2". The solder used shall have high-purity components and shall be from a recognized brand name manufacturer, such as, but not necessarily limited to, Kester®. Solder flux to be used for soldering operations shall be a rosin type.
 - 7.8.2 Solder used shall be at least equal to that designated as SAE No. 1, Class B.

7. MATERIALS & WORKMANSHIP (Continued)

- 7.8.3 A non-corrosive, non-conductive, rosin type flux shall be applied to a given solder joint area immediately before the soldering process commences. The rosin flux can be applied independently, or, if appropriate for the soldering task, can be in the center core section of a given solder wire. Any flux remaining after a given soldering operation has been completed shall be removed with an appropriate flux removal solvent so no residues remain at the solder joint area afterwards.
- 7.8.4 Ends of conductors to be soldered shall be thoroughly cleaned and tinned. Care shall be exercised to prevent the burning or "flow-back" of a given wire's outer insulation, and excessive flowing of the solder along the conductor.
- 7.8.5 Only enough solder shall be used to make a proper solder joint. Excessive solder at a solder joint shall be avoided. When applicable, a good mechanical joint of the applicable parts shall be made first prior to making the solder joint. All of the applicable parts that will be connected when making a solder joint shall be uniformly heated to the applicable temperature before solder is applied and flows to make the joint.
- 7.8.6 Each completed solder joint shall be clean and relatively bright in silver color. "Dark", "grainy", or "cold" solder joints are not allowed and shall be re-done.
- 7.9 Electrically Insulating Tape
- 7.9.1 When required, any electrically insulating tape used shall be of polyvinyl chloride (PVC) material having unrestricted qualification under Specification MIL-1-7798A. The tape shall have 0.007 inch nominal overall thickness. Color of the tape shall be as required. The electrically insulating tape shall be 3M® Scotch® Brand "Super 33+" vinyl electrical tape, or a technical equivalent in performance and quality reviewed by the CTA Engineer.
- 7.10 Electrical Terminals – Crimp & Solder Types
- 7.10.1 Crimp and solder type electrical terminals used shall be of the "ring" type, with a hole for a given screw/bolt size and an opening for a given size AWG wire as required for the application. The electrical terminals can be of tinned copper material or tinned brass material.
- 7.10.2 Electrical terminals for AWG size 8 wire and smaller shall be equal to Amp Brand PIDG type, and for larger than AWG size 8 wire, shall be made of seamless, tubular, copper, equal to Amp Brand, Ampower II type, unless otherwise agreed to by the CTA Engineer.

7. MATERIALS & WORKMANSHIP (Continued)

- 7.10.3 After a given wire and electrical terminal have been joined, one shall not see any of the wire's inner conductors at the area where the wire's outer insulation meets the body end of electrical terminal. Also, the area where the wire's outer insulation meets the body end of the electrical terminal shall have an appropriate length of heat shrink tubing placed over it. The heat shrink tubing shall be of the appropriate diameter before shrinking, have a 2:1 shrink ratio, and be black in color unless specified otherwise by the CTA Engineer.

7.11 Paint and Painting/Finishing

- 7.11.1 All applicable surface areas of a component or item to be painted/finished shall be properly and thoroughly prepared, including the removal of any surface debris and welding spatter. After being prepared for painting/finishing, a minimum of one (1) coat of base primer and then a minimum of one (1) coat of acrylic enamel paint, such as DuPont™ Centari® Brand, or equivalent, shall be applied. Powder coating may be used in lieu of using acrylic enamel paint. All painting/finishing work on a given component or item shall comply with the appropriate painting/finishing manufacturer's product and process guidelines and recommendations, and shall be performed in an area free from dirt, dust, and airborne contaminants. Any painting/finishing work performed on a given component's or item's surface which shows the presence of dirt, dust, runs, or "orange peel" after process completion shall not be acceptable, and shall be redone at the contractor's expense.

8. CAPITAL SPARES & OTHER DELIVERABLES

8.1 Capital Spares

- 8.1.1 The contractor shall furnish capital spares of specific run number sign unit components/parts in the quantities presented below. These capital spares shall be shipped to the CTA as directed by the CTA Engineer. If a modification or modifications are made to any unit installed on a railcar before or after delivery to the CTA during the warranty period, then the modification or modifications shall also be incorporated into the capital spares at no cost to the CTA.

- a) Any relays and contactors: Ten (10) of each type.
- b) Power supply: Ten (10).
- c) Plug-in circuit cards (PCBs): Ten (10) of each type.

8. CAPITAL SPARES & OTHER DELIVERABLES (Continued)

d) Non plug-in circuit cards (PCBs): Ten (10) of each type.

If designs and arrangements of components/parts other than those listed above are used, the CTA Engineer will adjust the description and quantity to correspond to the description of the component/parts actually being furnished by the contractor as capital spares.

8.1.2 The contractor shall prepare a detailed components/parts list on the specific run number sign kit they intend to furnish for review by the CTA Engineer. The list shall include, but not necessarily be limited to, manufacturer/vendor component/part numbers and complete component/part descriptions, so that the CTA can assign an appropriate CTA Item Number to a given component/part of the run number sign kit.

8.1.3 The capital spare units listed in Section 8.1.1 shall be shipped to the CTA no later than ninety (90) days after shipment of the first production destination sign kit to the CTA by the contractor.

8.2 Other Deliverables

8.2.1 Bench Test Equipment - The specified bench test equipment shall be shipped to the CTA no later than one hundred eighty (180) days after the delivery of the first production run number sign kit to CTA by the contractor.

9. SHIPPING REQUIREMENTS

9.1 Each shipment of contractor product to the CTA shall include a complete packing list. Each packing list furnished shall include, but not necessarily be limited to, the following items.

- a) Description of Product(s)
- b) Quantity
- c) CTA Purchase Order Number

9.2 Contractor product being shipped to the CTA shall be appropriately packaged, and when applicable, placed atop a pallet or pallets made of wood or polymer material. The CTA can accept shipment of contractor product during the hours of 7:00 AM until 3:00 PM, CST, Monday through Friday, not including Saturdays, Sundays, or Holidays, unless mutually agreed to in advance by the contractor and the CTA Engineer.

10. PRE-BID MEETING

- 10.1 See the Special Conditions section of the Contract Documents for possible information on a CTA pre-bid meeting for a given contract. The CTA Procurement Administrator, whose name and contact information is listed in the Contract Documents, shall administer the pre-bid meeting and determine its date, time, and location.

11. WARRANTY & PRODUCT SUPPORT REQUIREMENTS

- 11.1 See the Special Conditions section of the Contract Documents for product warranty and product support requirements to be furnished by the contractor or the contractor's authorized agent.

12. ADDITIONAL INFORMATION FOR POTENTIAL CONTRACTORS

- 12.1 Not every section, or a partial section within a section, of this specification may be specifically applicable to the product required, namely,

3-DIGIT RUN NUMBER SIGN; LIGHT EMITTING DIODE (LED) TYPE
DISPLAY,
COMPLETE KIT, RAPID TRANSIT RAILCAR APPLICATION

- 12.2 Should a potential contractor fail to provide all the necessary information on a given subject matter for a given procurement in the potential contractor's bid response package, the potential contractor shall respond with the necessary information within three (3) business days if so requested by the CTA.
- 12.3 Potential contractors requiring any additional information shall contact the CTA Procurement Administrator whose name is stated in the Contract Documents. Potential contractors requiring additional information from a person or persons potentially listed in the Special Conditions section of the Contract Documents must route their request through the Procurement Administrator. Potential contractors who contact any CTA personnel other than the Procurement Administrator during the open bidding period will be considered to be in violation of the provisions set forth in the Contract Documents.

EM/ em – Initial Specification – 05/20/14

EM/ em – Revised for bid contract, Addendum # 1 – 01/15/15

CHICAGO TRANSIT AUTHORITY
Advertisement for Bids

Sealed bids will be received for the following by Chicago Transit Authority at the Bid Office - 2nd Floor, 567 W. Lake St., Chicago, Illinois 60661-1498, no later than 11:00 A.M. on Tuesday, March 24, 2015 at which time all such bids will be opened publicly and read aloud:

Req. C15RT101631000, Spec. No. CTA: 8303-15
Furnish and Deliver Two Hundred Sixty One (261), LED
Run Number Sign Kits for 3200 Series Rail Cars, F.O.B
Destination.

PROPOSAL GUARANTEE: NONE

A Pre-Bid Meeting will be held on Wednesday, January 28, 2015. The meeting will convene at 10:00 a.m. (central time) at the CTA Skokie Rail Maintenance Facility located at 3701 West Oakton, Skokie, IL 60076.

For additional information, please contact Luis Bejar, Senior Procurement Administrator, 312/681-2468.

Any contract resulting from this bid is subject to a financial assistance between the Chicago Transit Authority, the United States Department of Transportation and the Regional Transportation Authority.

Contractor will be required to comply with all applicable Equal Employment Opportunity laws and regulations and affirmative action requirements of the Federal Transit Administration and Illinois Human Rights Commission.

All bidders will be required to certify that they are not on the Comptroller General's list of ineligible contractors.

Any contract resulting from this advertisement will be awarded to the lowest responsive and responsible bidder.

Chicago Transit Authority hereby notifies all bidders that it will affirmatively ensure that in regard to any contract entered into pursuant to this advertisement, Disadvantaged Business Enterprise will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color or national origin in consideration for an award.

PLEASE NOTE: When bids are sent by mail, delivery service or delivered in-person to the CTA Bid Office, the bidders shall be responsible for their delivery only to the Bid Office before the advertised date and hour for the opening of the bids. The Bid Office hours are Monday through Friday from 8:00 a.m. to 4:30 p.m. Chicago time, except holidays.

The right is reserved to accept any bid or any part or parts thereof or to reject any and all bids. Acceptance of any bid is subject to concurrence by the Regional Transportation Authority and the United States Department of Transportation.

All inquiries should be directed to and copies of bid documents obtained from the Bid Office - 2nd Floor, 567 W. Lake St., Chicago, Illinois 60661-1498.

CHICAGO TRANSIT AUTHORITY

By: Ellen McCormack
Vice President,
Purchasing & Supply Chain

January 13, 2015



PROCUREMENT SPECIFICATIONS AND CONTRACT DOCUMENTS FOR

**FURNISH AND DELIVER TWO HUNDRED SIXTY ONE (261), LED RUN
NUMBER SIGN KITS FOR 3200 SERIES RAIL CARS, F.O.B.
DESTINATION.**

REQUISITION NO.: C15RT101631000

SPECIFICATION NO.: CTA 8303-15

DRAWING No's.: None

PROJECT NO.: IDOT Bonds

INSURANCE REQUIRED: No

BID DEPOSIT AMOUNT: N/A

INFORMATION:

Senior Procurement Administrator: Luis Bejar

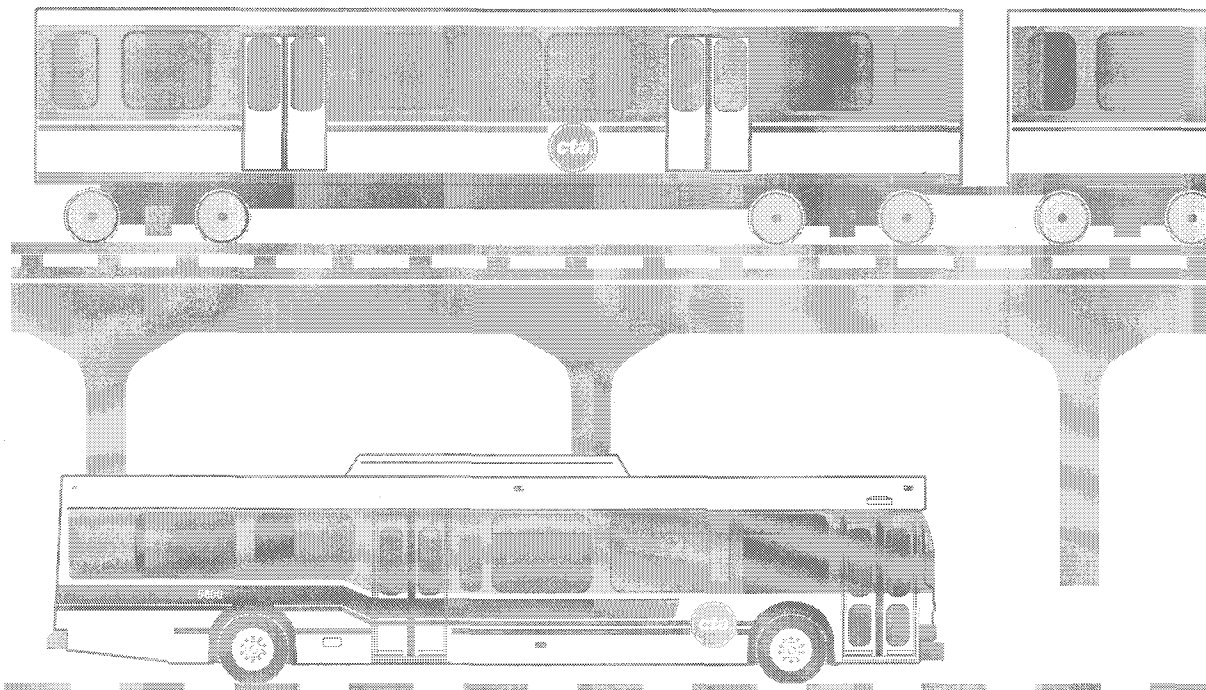
Phone Number: (312) 681-2468

E-mail address: lbejar@transitchicago.com

BID PACKAGES TO BE RETURNED TO:

**By Mail or In Person Drop-off
Chicago Transit Authority
Bid Office - 2nd Floor
567 West Lake Street
Chicago, Illinois 60661-1498**

All Signatures to be sworn before a Notary Public



ISSUED BY

**Purchasing Department, Chicago Transit Authority
567 West Lake Street Chicago, Illinois 60661-1498
Ellen McCormack, Vice President, Purchasing & Supply Chain
Forrest Claypool, President
Terry Peterson, Chairman**

READ THIS PAGE BEFORE FILLING OUT BID PACKAGE

DOCUMENT PREPARATION **for Materials & Supplies**

One (1) complete bid package is included. **One (1) complete copy** of this bid package is to be returned in a sealed envelope with the following on the cover: Bidder's name, Address, Title of the procurement including Requisition Number, and Advertised date and hour designated for the bid opening as shown on the advertisement. Returned copy must contain **original signatures**. CTA recommends that you make and retain one copy for your records.

SIGNATURES REQUIRED ON THE FOLLOWING ITEMS

- **DBE PARTICIPATION SCHEDULES B, C, & D** – *Schedules C and D must be filled out and signed by all bidders/DBE subs; Schedule B must also be filled out and signed if the bidder is a joint venture.* All information relative to Disadvantaged Business Enterprise (DBE) participation for this contract is outlined in the DBE Special Conditions section entitled, "*Disadvantaged Business Enterprise Commitment*".
- **GOOD FAITH EFFORTS TO MEET CONTRACT DBE GOAL** – If the contract DBE goal (if any) cannot be fully met through DBE participation on this contract, the bidder **must submit** a signed letter on its company letterhead and supporting documentation to show that all reasonable "Good Faith Efforts" were made toward fulfilling the required DBE goal. Please refer to "SPECIAL CONDITIONS -DISADVANTAGED BUSINESS ENTERPRISE COMMITMENT" Good Faith Efforts (Section V or VI) for further details. Failure to document Good Faith Efforts to meet the contract DBE goal when the goal cannot be fully met through participation will result in a "Non-Responsive" (Disqualified) bid which will be ineligible for contract award.
- **BUY AMERICA CLAUSES** – Certificate of Compliance or Non-Compliance with Sections 165(a) and 165(b)(3). [Does not apply to Operating funded procurements, personal minicomputer purchases or purchases less than \$100,000.00.]
- **CERTIFICATION REGARDING A DRUG FREE WORKPLACE**
- **CERTIFICATION OF PARTICIPANT REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS.** Two forms: PRIMARY and LOWER TIER (when applicable).
- **CERTIFICATION FOR CONTRACTS, GRANTS, LOANS AND COOPERATIVE AGREEMENTS (LOBBYING CERTIFICATION)**

A NOTARIZED SIGNATURE by an authorized officer of your business must appear on one of the following Proposal Execution pages:

- **TO BE EXECUTED BY A CORPORATION**

The SIGNATURE OF AUTHORIZED OFFICER, under Corporate Name must be President or Vice President. If signed by any other person, a resolution or by-law authorizing such person to execute a contract must accompany the Proposal.

Note – Name of Signatory in Notary is same name as Signature of Authorized Officer.

- **TO BE EXECUTED BY PARTNERSHIP OR JOINT VENTURE**

Note – Name of Signatory in Notary is same name as first signature line – Partner.

- **TO BE EXECUTED BY SOLE PROPRIETOR**

Note – Name of Signatory in Notary is same name as Name of Bidder.

OWNERSHIP DISCLOSURE – This document is required, failure to address this will cause a delay in the execution of the contract.

INSURANCE (when required) – The awarded contractor must provide **certified** copies of insurance policies in order to allow for contract execution. CTA is to be named an **additional insured**. This should be taken into consideration when submitting your bid.

Note: Questions on the Detail Specification must be in writing to the Procurement Administrator listed on the front of the bid document **no later than seven (7) calendar days prior** to the bid due date. After that, there will not be sufficient time for the Procurement Administrator to obtain responses to questions.

Failure to sign the documents listed above may result in your firm not being awarded the contract.

CONTRACT FOR SUPPLIES REQUIREMENTS FOR BIDDING AND INSTRUCTIONS TO BIDDERS

Bids will be received by the **CHICAGO TRANSIT AUTHORITY**, a Municipal Corporation, in accordance with the Contract Documents set forth herein.

1. DEFINITIONS AND INTERPRETATION:

Unless otherwise expressly stated herein, the following words, terms and phrases shall have those meanings set forth below:

"Authority" means the Chicago Transit Authority ("CTA") acting by and through the Chicago Transit Board or its duly authorized agent, servant or employee in connection with the Contract Documents.

"Bid" means the document conveying an offer from a party desiring to provide or procure goods or services in response to a solicitation.

"Bidder" means the general term for the entity that submits a response to this solicitation. Any individual, firm, partnership, corporation, or combination thereof, submitting a Bid for the work contemplated, acting directly or through a duly authorized representative.

"Contact Person" means the individual designated the "Contact Person" in the Special Conditions of this Contract, or his or her authorized designee.

"Contract" means the legally binding agreement to be entered into by the bidder selected as a result of this solicitation.

"Contract Documents" means all of the agreements, specifications and documents which together form the Contract.

"Contractor" means the person, entity, or authorized representative identified as such in the Contract Documents, and is referred to throughout the Contract Documents as if singular in number.

"DOT" means the United States Department of Transportation or any successor agency.

"FTA" means the DOT's Federal Transit Administration or any successor agency.

"General Manager, Purchasing" means the Authority's General Manager, Purchasing or his or her authorized representative.

"IDOT" means the Illinois Department of Transportation or any successor agency.

"Procurement Administrator" means the Procurement Administrator identified in this solicitation for this Contract, or his or her authorized designee.

"RTA" means the Regional Transportation Authority or any successor agency.

"Subcontractor" means any person or entity with whom the Contractor subcontracts to provide any part of the work and all Subcontractors of any tier, suppliers, and material suppliers, whether or not in privity with Contractor.

"Vice President, Purchasing and Supply Chain" means the Vice President, Purchasing and Supply Chain of the Chicago Transit Authority, or his or her authorized designee.

The singular shall include the plural and the masculine includes the feminine.

2. COMPLIANCE WITH LAWS:

The bidders shall at all times observe and comply with all laws, ordinances, regulations and codes of the Federal, State, City, and other local government agencies, which may in any manner affect the preparation of bids or the performance of the Contract.

3. BID DEPOSIT:

A bid shall, when required in the advertisement, be accompanied by cash, a cashier's check, a certified check, a money order or an approved bid bond in the amount shown in the advertisement, and as may be prescribed in the Contract Documents.

All certified, cashier's checks or money orders shall be drawn on a responsible organization doing business in the United States and shall be made payable to the order of the Chicago Transit Authority.

Any bid bond submitted must reference the specific CTA inquiry numbers and have an Alfred M. Best Company "B+" Policyholders Rating and an "X" Financial Rating or better.

The period of the bond must be for not less than ninety (90) calendar days from the date of bid opening.

4. PREPARATION OF BID:

The bidder shall prepare his bid in DUPLICATE on the attached bidding forms, submit one (1) copy and retain one (1) for his records. Unless otherwise stated on the bidding form, all blank spaces on the bid, applicable to the subject specification, must be correctly filled in. Either a unit price or a lump sum price, as the case may be, must be stated for each and every item, either typed in or written in ink, in figures, and if required, in words.

If bidder is a Corporation, the President or Vice-President and Secretary or Assistant Secretary, shall execute both copies of the bid. The Corporation shall affix its seal to both copies. In the event that the bid is executed by someone other than the President or Vice-President, a certified copy of that section of the Corporate By-Laws or resolution of the Corporation which permits the person to execute the offer for the Corporation shall be furnished with the bid.

If bidder is a Partnership or Joint-Venture, all partners or joint-ventures shall execute both copies of the bids unless one partner or joint-venture has been authorized to sign for the Partnership or Joint-Venture, in which case, evidence of such authority satisfactory to the Procurement Administrator shall be submitted with the bid.

If bidder is a Sole Proprietor, he shall execute both copies of the bid.

A "Partnership," "Joint-Venture" or "Sole Proprietor" operating under an Assumed Name must be registered with the Illinois County in which it is located, as provided in the Assumed Business Name Act, 805 ILCS 405 et seq., as amended.

ALL SIGNATURES MUST BE SWORN TO BEFORE A NOTARY PUBLIC

5. SUBMISSION OF BIDS:

All prospective bidders shall submit **ONE (1) SEALED BID** in an envelope for that purpose to the CHICAGO TRANSIT AUTHORITY, Bid Office – 2nd Floor, 567 W. Lake Street, Chicago, Illinois 60661-1465; the sealed envelope submitted by the prospective bidder shall carry the following information on the face of the envelope: **bidder's name, address, subject matter of bid including identifying numbers, advertised date of bid opening, and the hour designated for the bid opening as shown on the advertisement.**

The bidders shall be responsible for their delivery to the Bid Office before the advertised date and hour for the opening of bids. If the delivery of a bid is delayed beyond the date and hour set for the bid opening, whether through a mail delay or otherwise, such bids will not be considered and will be returned unopened. The Bid Office hours are Monday through Friday from 8:00 am to 4:30 pm Chicago time, except holidays.

6. WITHDRAWAL OF BIDS:

Bidders may withdraw their bids at any time prior to the date and hour specified in the advertisement for the receipt of bids. However, no bidder shall withdraw or cancel his bid for a period of ninety (90) calendar days after the advertised date and hour for the receipt of bids.

7. RESPONSIBILITY OF BIDDER:

The Authority reserves the right to refuse to accept any bid from any person, firm or corporation that is, or an affiliate is, in arrears or is in default to the Chicago Transit Authority upon any debt or contract, or that is a defaulter, as surety or otherwise, upon any obligations to the Authority, or had failed to perform faithfully any previous contract with the Authority.

The bidder, if requested, must present within two (2) business days, evidence satisfactory to the Procurement Administrator, of performance ability and possession of necessary facilities, pecuniary resources and adequate insurance to comply with the terms of these specifications and Contract Documents.

8. CONSIDERATION OF BIDS:

The Authority reserves the right to extend the bid opening date and to reject any or all bids or any part thereof. The Authority further reserves the right to excuse informalities in the bids and bidding when, in the judgment of the Authority, the best interests of the Authority will be served and the spirit of competition will be maintained. If only one (1) bid is received, a cost or price analysis and evaluation and/or audit shall be performed of the single bidder's cost breakdown in order to determine if pricing is fair and reasonable.

9. ORDER OF PRECEDENCE OF BEST PRICE:

In determining the best price, the Authority reserves the right to consider the bids in the following order of precedence:

- A. Firm fixed price or charge;
- B. Base price or charge plus/minus escalation specified in Special Conditions, if any;
- C. Base price or charge plus/minus maximum percent or dollar escalation.

10. NEGOTIATED CONTRACTS:

The Authority reserves the right to reject all bids received, and may, but is not required to, negotiate a contract with any responsible bidder(s), if the bids received are at unreasonable prices but otherwise acceptable, or for other reasons determined to be clearly in the public's best interest and in accordance with established guidelines.

In the event that negotiations are conducted, the Authority or its duly authorized representative shall have the right to examine and audit books, records, documents and other evidence and accounting procedures and practices, sufficient to reflect properly all costs claimed to have been incurred or anticipated in performing the Contract. The Contractor agrees to include in first-tier subcontracts (or other subcontracts where a substantial portion of the work is being performed) a clause to the effect that the Authority or duly authorized representatives have access to and the right to examine any of the Subcontractor's directly pertinent books, documents, papers, or other records involving transactions related to the subcontract.

11. ACCEPTANCE OF BIDS:

The Authority will accept in writing one or more of the bids or reject all bids within ninety (90) calendar days from the date of opening the bids, unless the lowest responsible bidder, upon request of the Procurement Administrator, extend the time of acceptance.

The Contract shall not be in force and effect until it has been executed by the Authority's signatory duly authorized by the Authority's regulations, bylaws, and procedures.

12. PERFORMANCE-PAYMENT BOND AND INSURANCE:

When required by the Contract Documents, the successful bidder or bidders shall, within ten (10) business days after acceptance of the bid by the Authority, furnish a performance-payment bond in the full amount of the Contract on an approved American Institute of Architects (A.I.A.) bond form and/or furnish and keep in force, during the life of the Contract, any and all insurance in amounts designated, as provided in the Insurance Requirements, form CTA 415.27 (Revised) attached hereto, with insurance companies acceptable to the Chicago Transit Authority. Any insurance company with less than a (B+) policyholder rating by Alfred M. Best Co. will not be acceptable to the Chicago Transit Authority.

13. FAILURE TO FURNISH BOND OR INSURANCE:

In the event that the bidder fails to furnish the performance-payment bond and/or insurance requirements in said period of ten (10) business days after acceptance of the bid, then, the bid deposit of the bidder may be retained by the Authority. The bid deposit may be used as liquidated damages, not as a penalty, to partially cover costs and losses by the Authority.

14. INTERPRETATION OF CONTRACT DOCUMENTS:

If any person contemplating submitting a bid is in doubt as to the meaning of any part of the Contract Documents, written request for an interpretation thereof may be submitted to the Procurement Administrator. The person submitting the request will be responsible for its prompt delivery. Any change or interpretation of the proposed documents will be made only by Addendum duly issued by the Procurement Administrator. Addendums shall be posted on www.transitchicago.com, and the Procurement Administrator will use good faith efforts to notify by email, or by mail if requested in writing, each person who has registered on www.transitchicago.com to receive the Contract Documents, or otherwise was provided the Contract Documents by the Authority, of such Addendum. Failure on the part of the prospective bidder to receive a written interpretation prior to the time of the opening of bids will not be grounds for withdrawal of bid. Oral explanation will not be binding. **Bidder must acknowledge receipt of each addendum issued in space provided on the signature page of Bid Documents.**

15. CATALOGS:

Subsequent to bid opening, when requested by the Procurement Administrator, each bidder shall submit in **DUPLICATE**, catalogs, descriptive literature, and detailed drawings, fully detailing features, designs, construction, appointments, and finishes, necessary to fully describe the material or work he proposes to furnish. This information will be furnished to the Authority within ten (10) calendar days from date of request. Failure to furnish this information may result in the disqualification of the Bid.

16. TRADE NAMES:

In cases where an item is identified by a manufacturer's name, trade name, catalog number, or reference, it is understood that the bidder proposes to furnish the item so identified and does not propose to furnish an "equal" unless the proposed "equal" is definitely indicated by the bid.

The reference to the manufacturer's name, trade name, catalog number, or reference, is intended to be descriptive but not restrictive and only to indicate to the prospective bidder articles that will be satisfactory. Bids on other makes and catalogs will be considered, provided each bidder clearly states on the face of his bid exactly what he proposes to furnish, or forwards with the bid, a cut, illustration, or other descriptive matter which will clearly indicate the character of the article covered by his bid.

The Procurement Administrator, hereby reserves the right to approve an "equal" or to reject as not being an "equal," any article the bidder proposes to furnish which contains variations from specification requirements.

17. RETURN OF BID DEPOSIT:

The bid deposit of all bidders, except the two apparent lowest bidders on each contract, will be returned within ten (10) calendar days after the opening of bids. The bid deposit of the two (2) apparent lowest bidders will be returned after the bid has been accepted by the Authority including the acceptance by the Authority of satisfactory performance-payment bond and/or insurance where such bond or insurance are required.

Within ten (10) calendar days after the date of opening of bids a bidder may request that a bid bond be substituted for the bid deposit. The Procurement Administrator may allow substitution of a bid deposit upon application in writing thereof, and submittal of a bid bond in an amount equal to the bid deposit. Any bid bond submitted must reference the specific CTA inquiry number and have an Alfred M. Best Company "B+" Policyholders Rating and an "X" Financial Rating.

The period of the bond must be for not less than ninety (90) calendar days from the date of bid opening.

18. TAXES:

Federal Excise Tax does not apply to materials purchased by the Chicago Transit Authority by virtue of Exemption Certificate No. 36-73-0234K. Illinois Retailers' Occupation Tax, Use Tax, and Municipal Retailers' Occupational Tax does not apply to materials or services purchased by the Authority by virtue of Statute Chapter 111 2/3 and Section 333, Illinois Revised Statutes as amended. These taxes shall not be included in any of the prices quoted herein. Illinois Tax Exemption Identification number is E9978-2987-06. The prices quoted herein shall agree with all Federal Laws and Regulations.

19. VENDOR REGISTRATION:

Prior to doing business with the Authority, the Authority requests that all vendors register their company via the Authority's web based Business Diversity Management system. Please visit the following link to register your company with the Authority: <https://cta.dbesystem.com/>. Please note that upon contract award, registration on the Authority's Business Diversity Management system will be required.

20. FREEDOM OF INFORMATION ACT NOTICE:

The Authority is subject to the requirements of the Illinois Freedom of Information Act, 5 ILCS 140/1 et seq. ("FOIA"), which enables the public to request and obtain records from the Authority. FOIA requires, upon request, the public disclosure of any non-exempt information in bid materials, contracts, invoices and payment records (among other records). See Section 7 and 7.5 of FOIA, 5 ILCS 140/7 and 7.5, for a complete list of the exemptions available under FOIA.

Bid materials become the property of the Authority when submitted and cannot be returned. Because the sealed bid materials submitted to the Authority in connection with this procurement will be opened at a public bid opening, all contents of the bid materials will be publicly viewable at the bid opening. All bid materials and any subsequent contract (including any later amendments thereto) will be subject to public disclosure under FOIA upon request, without any further notice to you, after the successful bidder and the Authority have executed a written contract. The Authority may also publish the content of the bid materials and any subsequent contract in connection with this procurement, in whole or in part, on its website or in any other format without any further notice to you.

If you have any questions regarding the FOIA process at the Authority, please contact the Authority's Freedom of Information Officer at (312) 681-2809 or via e-mail at FOIA@transitchicago.com.

21. BID PROTEST PROCEDURES:

Any protest regarding this solicitation, or an evaluation or award hereunder, must be submitted in accordance with the Authority's bid protest procedures, available at: <http://www.transitchicago.com/asset.aspx?AssetId=5857>.

22. ELECTRONIC FUND TRANSFER:

CTA has adopted Electronic Funds Transfer (EFT) as the preferred method of payment for vendor invoices. An EFT enrollment form will be provided to the successful bidder with the executed contract and must be completed to enable payment of vendor accounts by this method. If awarded a contract, provide the completed EFT form to the CTA Purchasing Administrator identified on the title page.

CONTRACT FOR SUPPLIES GENERAL CONDITIONS

1. DEFINITIONS AND INTERPRETATION:

Unless otherwise defined herein, words, terms and phrases shall have the meanings ascribed in the Requirements for Bidding and Instructions to Bidders, and the rules for contractual interpretation therein shall apply.

2. DELIVERY:

All materials shipped to the Authority must be shipped F.O.B. destination location. If prior delivery notification is specified, arrangements must be made by the vendor with the Authority's designated receiving location at least twenty-four (24) hours in advance to arrange for receipt of the materials. The material must then be delivered where directed and as agreed upon.

Unless otherwise specified or agreed upon, truck deliveries to 567 W. Lake Street, Chicago, IL 60661-1465 shall be made between 8:00 A.M. and 4:00 P.M. on weekdays, and to other locations between 7:00 A.M. and 3:00 P.M. on weekdays. No deliveries will be accepted on Saturdays, Sundays or Holidays.

The quantity of material delivered by truck shall be ascertained from a weight certificate issued by a duly licensed Chicago Public Weigh-Master upon request. In the case of delivery by rail, weight will be ascertained from bill-of-lading from originating line, but the Authority reserves the right to re-weigh at the nearest available railroad scale.

Whenever shipping any equipment, materials, or commodities pursuant to this Contract, the Contractor shall utilize privately-owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved to the extent that such vessels are available at fair and reasonable rates. The Contractor shall furnish a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in this paragraph to the Authority and to the Division of National Cargo, Office of Market Development, Maritime Administration, 400 Seventh Street, S.W., Washington, D.C., 20590, marked with appropriate identification of the project. The Contractor shall furnish this bill-of-lading within twenty (20) business days following the date of loading for shipments originating within the United States, or within thirty (30) business days following the date of loading for shipments originating outside the United States.

3. DEMURRAGE AND RE-SPOTTING:

The Authority will be responsible for demurrage charges only when such charges accrue because of the Authority's failure to unload the material after it has been determined that the material is in compliance with the Contract Documents. The Authority will pay railroad charges due to the re-spotting of cars only when such re-spotting is ordered by the Authority.

4. MATERIALS INSPECTION AND RESPONSIBILITY:

The Contact Person shall have the right to inspect any materials to be used in carrying out this Contract. The Authority does not assume any responsibility for the availability of any controlled materials or other materials and equipment required under this Contract. All materials and equipment furnished under this Contract shall be new, unless otherwise specifically stated. The Contractor shall be responsible for the contracted quality and standards of all materials, components or completed work furnished under this Contract. Materials, components or completed work not complying therewith may be rejected by the Contact Person and shall be replaced by the Contractor at no cost to the Authority. Any materials or components rejected shall be removed within a reasonable time from the premises of the Authority, at the Contractor's sole expense, after written notice has been mailed by the Authority to the Contractor that such materials or components have been rejected.

5. TITLE AND RISK OF LOSS:

Legal title to the materials or other goods under the Contract shall pass to the Authority upon the soonest of (i) payment by the Authority, and (ii) delivery to the destination location. Contractor warrants and guarantees that legal title shall pass to the Authority free and clear of any and all encumbrances, security interests or liens. Contractor retains risk of loss until acceptance by the Authority.

6. PAYMENT:

Payment to Contractor shall be as specified in Special Conditions of this Contract. The Authority retains the right to set off payments due under this Contract against any payments due or to become due under any other contract that the Contractor or any affiliate thereof may have with the Authority.

In the event that this Contract includes an escalation provision, the Contractor must provide evidence satisfactory to the Authority which justifies any and all price or charge increases / decreases provided under the escalation provision on or prior to the first invoice which reflects the new price or charge.

7. CASH BILLING DISCOUNT:

Cash billing or percentage discount for payment of invoices within a specified period of time will not be considered by the Authority in evaluating bids. When determining if it has earned a cash billing discount offered by the Contractor, the Authority will consider the period from the date of the invoice plus two business days for mailing or the date of receipt of the goods or services, whichever is later, to the date the check is mailed in payment of the invoice. If a discount period ends on a Saturday, Sunday or legal holiday, the discount periods will be extended to the next succeeding workday.

8. INVOICES:

Invoices must be sent to the Chicago Transit Authority, Accounts Payable, 567 W. Lake Street, Chicago, IL 60661-1465. Invoices must bear the order number and, if an annual contract, release number as issued. Invoices must not cover more than one order or release number.

9. PRICE REDUCTION:

If the Contractor to whom a contract has been awarded makes a general price reduction effective on or after the date of its bid in the comparable price of any material covered by this Contract to customers generally, an equivalent price reduction based on similar quantities and/or considerations shall apply to this Contract for the duration of the term (or until the price is further reduced). Such price reductions shall be effective at the same time and in the same manner as the reduction in the price to customers generally. For the purpose of this provision, a "general price reduction" shall mean any horizontal reduction in the price of an article or service offered—(1) to Contractor's customers generally, or (2) in the Contractor's price schedule for the class of customers, i.e., wholesalers, jobbers, retailers, etc., which was used as the basis for bidding on this Contract. An occasional sale at a lower price, or sale of distressed merchandise at a lower price, would not be considered a "general price reduction" under this provision. The Contractor shall invoice the Authority as such reduced prices, indicating on the invoice that the reduction is pursuant to the "Price Reduction" provision of the Contract Documents. The Contractor, in addition, shall within ten (10) calendar days of any general price reduction notify the Procurement Administrator of such reduction by letter. Failure to do so may result in termination of this Contract, without prejudice to any other remedies of the Authority.

The Contractor, when required by the Procurement Administrator within ten (10) calendar days after the end of the term, shall furnish a statement certifying either—(1) that no general price reduction, as defined herein, was made after the date of the bid or offer, or (2) if any such general price reductions were made, that, as provided herein, they were reported to the Procurement Administrator within ten (10) calendar days, and the Authority was billed at the reduced prices. Where one or more such general price reductions were made, the statement furnished by the Contractor shall include, with respect to each price reduction: (1) the date when notice of any such reduction was issued, (2) the effective date of the reduction, and (3) the date when the Procurement Administrator was notified of any such reduction.

10. PROMPT PAYMENT TO SUBCONTRACTORS:

The Contractor is required to pay all Subcontractors for all work that the Subcontractor has satisfactorily completed, no later than fourteen (14) calendar days after the Contractor has received payment from the Authority. In addition, any retainage amounts must be paid by the Contractor to the Subcontractor no later than fourteen (14) calendar days after the Subcontractor has, in the opinion of the Contact Person, satisfactorily completed its portion of the work. The requirements of this paragraph must be stated in all of the Contractor's subcontracts.

A delay in or postponement of payment to a Subcontractor requires good cause and prior written approval of the General Manager, Purchasing. The Contractor is required to include, in each subcontract, a clause requiring the use of appropriate arbitration mechanisms to resolve all payment disputes.

The Authority will not pay the Contractor for work performed unless and until the Contractor ensures that Subcontractors have been promptly paid for the work they have performed under all previous payment requests, as evidenced by the filing with Authority of lien waivers (if applicable), canceled checks (if requested), and the Contractor's sworn statement that it has complied with the prompt payment requirements. The Contractor must submit a prompt payment affidavit, (form to be provided by the Authority) which identifies each Subcontractor (both DBE and non-DBE) and the date and amount of the last payment to such Subcontractor, with every payment request filed with Authority, except for the first payment request.

Failure to comply with these prompt payment requirements is a breach of the Contract which may lead to any remedies permitted under law, including, but not limited to, Contractor debarment. In addition, Contractor's failure to promptly pay its Subcontractors is subject to the provisions of 50 ILCS 505/9.

11. GUARANTEES AND WARRANTIES:

All guarantees and warranties required shall be furnished by the Contractor and shall be delivered to the Procurement Administrator before final payment on the contract is issued.

12. INDEMNIFICATION:

The Contractor agrees to protect, defend, indemnify, and hold the Authority, its Board members, officers, officials, representatives, and employees (hereafter "the Indemnified Parties"), free and harmless from and against any and all claims, damages, demands, fines, penalties, or losses, including damages for personal or bodily injury or death, in consequence of the granting of this Contract or arising out of or being in any way connected with the Contractor's performance under this Contract (collectively, "Losses"), except to the extent that the Loss is found by a court of competent jurisdiction to be solely caused by the negligence or willful misconduct of the Indemnified Party. The indemnity provided herein will be effective to the maximum extent permitted by applicable law and extends to all legal costs, including reasonable attorney fees, incurred in defense of a Loss. This indemnity is not limited by any amount of insurance required under this Contract, and, to the extent permissible by law, Contractor waives any statutory limits on its obligations to indemnify the Indemnified Parties. Upon tender by the Authority, the Contractor shall be solely responsible for the defense of any and all claims, demands, or suits against an Indemnified Party related to any Loss (including without limitation claims by Contractor's employees, subcontractors, agents, or servants) even though the claimant may allege negligence or willful misconduct by the Indemnified Party. The Authority will have the right, at its sole option, to participate in the defense of any such claim, demand or suit, without relieving the Contractor of its obligations hereunder. The Contractor will promptly provide, or cause to be provided, to the Authority's General Counsel, copies of such notices as Contractor may receive in respect of any Losses. The indemnity contained in this section will survive the expiration or termination of this Contract.

13. TERMINATION FOR CONVENIENCE:

The Authority may terminate this Contract, in whole or in part, without cause and at any time, by written notice to the Contractor from either the General Manager, Purchasing or Vice President, Purchasing & Supply Chain, whenever the Authority determines that such termination is in the best interest of the Authority. The notice will specify the extent to which the Contract is being terminated, the effective date of termination, and the disposition of any deliverables or other property to be provided under the Contract that may be in progress

and still in the Contractor's possession or control at the time of termination. Upon receipt of written notice of termination, Contractor agrees to take such action as may be reasonably requested by the Authority for the orderly closeout and transition of the services or work, including making every reasonable effort to obtain cancellation of subcontracts, or, at the Authority's request, cause the assignment of any such subcontracts to the Authority or its designee upon terms satisfactory to the Authority. Contractor shall mitigate any costs incurred with respect to the services, work or delivery of goods being terminated; the Authority will have no liability for costs that could have been reasonably mitigated by Contractor.

The Contractor shall submit an invoice within sixty (60) days of such termination in full payment for the services, work or goods which were furnished to the satisfaction of the Authority prior to the effective date of termination and for which no previous invoice was submitted to the Authority. Such invoice shall conform to the compensation provisions of this Contract for those services, work or goods that were satisfactorily provided prior to termination, prorated as necessary for any partial performance or delivery if payment was to be made on a lump sum or periodic basis. The Contractor may also include in its invoice certain costs not contemplated by the Contract's compensation provisions that are incurred solely as a result of the Authority's termination for convenience, such as re-stocking charges by Contractor's suppliers for goods that had been ordered by the Authority prior to the Contractor's receipt of notice of termination, but only to the extent that they are reasonable and documented to the satisfaction of the Authority. Any disagreement between the Authority and the Contractor as to the amount of the invoice will be resolved pursuant to the disputes provision of the Contract. In no event will the Contractor be entitled to lost profits for the services, work or goods that were terminated, or be entitled to greater than the amount that it would have been paid had the Contract not been terminated.

14. TERMINATION FOR CAUSE:

The Authority may, by written notice to the Contractor from either the General Manager, Purchasing or Vice President Purchasing & Supply Chain, declare the Contractor in default of this Contract, in whole or in part, in the following circumstances:

- (a) If the Contractor fails to perform services or work, or fails to deliver goods, as applicable, within the time frames set forth in this Contract;
- (b) If the Contractor fails to perform services or work, or fails to deliver goods, as applicable, that are compliant with standards of performance and/or technical specifications set forth in this Contract;
- (c) If the Contractor fails to perform any other obligation or keep any other covenant required to be performed or kept by Contractor pursuant to the Contract.

Upon receipt of notice of default, Contractor shall have ten (10) calendar days (or such longer period of time as may be authorized by the Authority in its notice of default, or shorter if required under the circumstances) to cure the event of default. If Contractor fails to cure within such time, then in addition to any other remedies available to the Authority at law or in equity, the Authority may terminate this Contract, in whole or in part. In the event of termination, Contractor's performance hereunder shall cease, and the Contractor shall prepare a final invoice reflecting the services, work or goods actually furnished to the satisfaction of the Authority that have not appeared on a previous invoice within sixty (60) days of such termination. The Contractor agrees to take such action as may be reasonably requested by the Authority for the orderly closeout and transition of the services or work at its cost, including making every reasonable effort to obtain cancellation of subcontracts, or, at the Authority's request, cause the assignment of any such subcontracts to the Authority or its designee upon terms satisfactory to Authority. The Authority agrees to pay the Contractor, in accordance herewith and as reflected on said invoices, for services actually furnished, less payment of any compensation previously paid and less any cost or damage incurred by the Authority as a result of such default, including; without limitation, any amounts necessary to obtain suitable substitute or replacement contractors whose costs are in excess of the payments that would have been due to the Contractor if the Contractor had satisfactorily performed the remainder of the Contract, as sole compensation for such termination. In the event that termination by the Authority for cause is determined by a court of competent jurisdiction to have been wrongful, it will be deemed to be a termination for convenience.

15. NOTICE:

All communications and notices under this Contract shall be in writing, delivered personally or by mail to the name and address of the accepted bidder as provided on the signature page of the bid hereof, or to the Chicago Transit Authority, Attention, General Manager, Purchasing, 567 W. Lake Street, Chicago, IL 60661-1465, as applicable. Notices delivered by mail will be deemed effective three (3) days after mailing in accordance with this section. Notices delivered personally will be deemed effective upon receipt. The addresses stated herein may be revised without need for modification or amendment of this Contract, provided written notification is given in accordance with this section.

16. NON-DISCRIMINATION:

The Contractor, in performing under this Contract, shall not discriminate against any worker, employee or applicant or any member of the public, because of race, creed, color, age, sex, ancestry, handicap or national origin, nor otherwise commit an unfair employment practice. The Contractor further agrees that this Article will be incorporated by the Contractor in all contracts entered into with suppliers of materials or services, contractors and Subcontractors, and all labor organizations furnishing skilled, unskilled and craft union skilled labor, or who may perform any such labor or services in connection with the Contract.

The Contractor's attention is called to the provisions of the Illinois Human Rights Act, which are hereby incorporated by reference.

To demonstrate compliance, the Contractor and its Subcontractors will furnish such reports and information as requested by the Authority or any Federal, State or local government or agencies that may require such information as a condition of financial assistance in whole or in part.

17. DISADVANTAGED BUSINESS ENTERPRISES:

All parties are hereby notified that in regard to any contract resulting from this solicitation, Disadvantaged Business Enterprises will be afforded full opportunity to participate, and will not be discriminated against because of race, color, sex, or national origin in consideration for an award.

18. INELIGIBLE CONTRACTORS:

Contractor hereby certifies that neither it nor any of its Subcontractors are currently debarred for violations of any applicable public contracts incorporating labor standards provisions or included on any applicable list thereof, including without limitation the General Service Administration's System for Award Management, the Illinois Department of Transportation's Suspension List, the Illinois Department of Labor Public Works Debarred Contractors List, the Illinois Department of Human Rights Debarred Companies List, the City of Chicago's List of Debarred Firms and Individuals, or the Authority's Suspension and Debarments Report.

19. PROHIBITED INTERESTS:

No members of, or delegate to, the Illinois General Assembly or the Congress of the United States shall be admitted to any share or part of this contract or to any benefit arising therefrom. No member, officer, or employee of the Authority or any other local public body with financial interest or control in this contract during his or her tenure or for one year thereafter shall have any interest, direct or indirect, in this contract or to the proceeds thereof.

20. ENVIRONMENTAL AND ENERGY PROTECTION AND CONSERVATION REQUIREMENTS:

The Contractor shall comply with all federal, state and local statutes, ordinances, regulations and rules as now existing or later amended, relating to environmental quality, health, safety, contamination and cleanup, in connection with the performance of this Contract, including, without limitation, (1) the Clean Air Act (42 U.S.C. § 7401 *et seq.*), (2) the Occupational Safety and Health Act, 29 U.S.C. §651 *et seq.*, (3) the Resource Conservation and Recovery Act (42 U.S.C. § 6962), including but not limited to the regulatory provisions of 40 C.F.R. Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 C.F.R. Part 247., (4) the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6231 *et seq.*), and (5) applicable FTA and DOT

environmental regulations. Where there are federal, state and local requirements, the most restrictive criteria shall govern.

21. MINIMUM WAGE:

Contractor and its Subcontractors must comply with Transit Board Ordinance No. 014-124 ("Minimum Wage Ordinance") and any regulations promulgated in pursuant thereof, to provide for a fair and adequate minimum wage to be paid to certain employees of certain Authority contractors and subcontractors, as described in categories 1, 2 and 3 below. As of November 15, 2014, the minimum wage to be paid pursuant to the Minimum Wage Ordinance is \$13.00 per hour ("Minimum Wage"). This minimum hourly wage is subject to adjustment on July 1 of every year based on the Consumer Price Index.

The Minimum Wage must be paid to:

- (1) all Contractor and Subcontractor employees performing work or services on property owned or controlled by the Authority or at any other location specified by the Authority in the Contract as the location for performance of the work or services;
- (2) those Contractor and Subcontractor employees who are directly performing work or services for which the Authority pays the Contractor an hourly rate or a per piece work rate for work; and
- (3) those Contractor and Subcontractor employees who fulfill the Authority's requirement for the Contractor to provide specified work hours or a specified number of workers;

however, the Minimum Wage requirement does not apply:

- (a) to valid IRS Code Section 501(c)(3) not-for-profit organizations;
- (b) with respect to any employee:
 1. whose work or services are performed in general support of the Contractor's or Subcontractor's operations,
 2. do not directly relate to the work or services provided to the Authority under the Contract,
 3. are either not included in the Contract price or are included in the Contract price as overhead, and
 4. that employee's regularly assigned work location does not fall within category #1 above;
- (c) to categories of employees subject to subsection 4(a)(2), subsection 4(a)(3), subsection 4(d), subsection 4(e), or Section 6 of the Illinois Minimum Wage Law, 820 ILCS 105/1 et seq., as amended; but does apply to those workers described in subsections 4(a)(2)(A) and 4(a)(2)(B) of the Illinois Minimum Wage Law; and
- (d) to employees subject to a collective bargaining agreement that provides for different wages than those required by the Minimum Wage Ordinance, provided that collective bargaining agreement was either in force prior to November 15, 2014 or, if negotiated after November 15, 2014, clearly and specifically waives the requirements of the Minimum Wage Ordinance.

Contractor and its Subcontractors must cooperate in any investigation by the Authority regarding compliance with the Minimum Wage Ordinance. Failure of the Contractor or any of its Subcontractors to comply with the Minimum Wage Ordinance or to cooperate in such an investigation is grounds for the Authority declaring the Contractor in default of this Contract and exercising such remedies as the Authority deems appropriate.

Contractor must include this provision in all subcontracts and cause its Subcontractors to comply with its requirements.

If this Contract includes any provisions (including, but not limited to, Davis-Bacon Act or Illinois Prevailing Wage Act) requiring payment of higher wages than required by the Minimum Wage Ordinance, then the Contractor and its subcontractors shall pay the higher wages required by such provisions.

22. PATENT RIGHTS:

To the extent required by the FTA rules and regulations, the Federal Government is entitled to a non-exclusive, royalty free license to use any invention resulting from this Contract, or patent to the invention, for Federal Government purposes.

23. NO OBLIGATION BY THE FEDERAL GOVERNMENT:

The Contractor acknowledges and agrees that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the Contractor, or any other party pertaining to any matter resulting from the underlying contract.

24. ACCESS TO RECORDS AND REPORTS:

The Contractor shall maintain its books, records, documents, and other evidence, and adopt accounting procedures and practices sufficient to properly reflect all costs of whatever nature, and provide the Authority, the DOT, the FTA Administrator, the Comptroller General of the United States, or the State of Illinois or any other authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examination, excerpts and transcriptions, from the date of this Contract through and until the expiration of five (5) years after completion of this Contract, or in the event of litigation or settlement of claims arising from the performance of this Contract, until the final disposal of all such litigation, appeals, claims, or exceptions related thereto, if longer.

No provision in this Contract granting the Authority a right of access to records and documents is intended to impair, limit, or affect any right of access to such records and documents that the Authority would have had in the absence of such provisions.

25. FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS:

The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 *et seq.* and U.S. Department of Transportation and FTA regulations, "Program Fraud Civil Remedies", 49 C.F.R. Part 31, apply to its actions pertaining to this Contract.

By submitting a proposal and execution of the Contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it may make, or causes to be made, pertaining to the Contract Documents. In addition to other penalties that may be applicable the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor. The Contractor also acknowledges that it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. subsection 5307, the Government reserves the right to impose the penalties of 18 U.S.C. subsection 5307, the Government reserves the right to impose the penalties of 18 U.S.C. subsection 1001 and 49 U.S.C. subsection 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate. The Contractor agrees to include the above language in each subcontract without modification, except to identify the subcontractor who will be subject to the provisions.

26. ETHICS:

The Contractor agrees to comply with all applicable requirements of the Illinois State Officials and Employees Ethics Act, 5 ILCS 430/1-1 *et seq.*, ("Ethics Act"), as it may be amended from time to time, the applicable provisions of which are incorporated into this Contract to the same force and effect as if set forth in full herein. As required by the Ethics Act, as amended, the Contractor agrees to cooperate fully and expeditiously with the State Office of the Executive Inspector General in all investigations. This obligation applies to all officers, directors, agents, partners, employees, and subcontractors of the Contractor.

The Contractor must comply with Authority Ordinance No. 004-76, as amended, the Authority Ethics Ordinance, the provisions of which are hereby incorporated into this Contract. The Contractor agrees that, as

provided by Section 5.3 of the Ethics Ordinance, any Contract negotiated, entered into, or performed in violation of the Ethics Ordinance shall be voidable as to the Authority. http://www.transitchicago.com/assets/1/procurement/ethics_code_2011_withappendix.pdf.

27. PRIVACY ACT:

The Contractor agrees to comply with, and assure the compliance of its employees with, the information restrictions and other applicable requirements of the Privacy Act of 1974, 5 USC subsection 552a. The Contractor agrees to obtain the express consent of the Federal Government before the Contractor or its employees operate a system of records on behalf of the Federal Government. The Contractor understands that the requirements of the Privacy Act, including the civil and criminal penalties for violation of the Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of the underlying contract.

28. OBLIGATION TO COMPLY WITH STATE AND FEDERAL LAW AND REGULATIONS:

The Contractor must at all times comply with all applicable IDOT, RTA and FTA regulations, policies, procedures, and directives, including without limitation those listed directly or by reference in the "Master Agreement" between the Authority and FTA, and any agreements between IDOT and RTA and RTA and CTA, or other applicable funding source, as they may be amended or promulgated from time to time during the term of this Contract. The Contractor's failure to so comply will constitute a material breach of this Contract.

29. INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION TERMS:

The preceding provisions include, in part, certain Standard Terms and Conditions required by the DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by the DOT, as set forth in the latest revision of FTA Circular 4220.1, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms will be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor must not perform any act, fail to perform any act, or refuse to comply with any Authority requests that would cause the Authority to be in violation of the FTA terms and conditions.

30. DISPUTES:

Except as otherwise provided in this contract, any dispute concerning a question of fact arising under this Contract which is not disposed of shall be decided after hearing by the Vice President, Purchasing & Supply Chain, who shall reduce the decision to writing. This decision shall be final and binding. A copy of the decision shall be communicated to the Contractor as herein provided. The remedies under the terms of this Contract are not exclusive of any other remedy. Each and every remedy is cumulative and in addition to any other remedy, existing now or hereafter, at law, or in equity.

31. ORDER OF PRECEDENCE:

The order of precedence of the component parts of the Contract Documents shall be as follows:

- | | |
|---|----------------------------|
| 1. General Conditions | 6. Advertisement for Bids |
| 2. Special Conditions | 7. Instructions to Bidders |
| 3. Plans and Drawings, if any | 8. Bond, if required |
| 4. Detailed Specifications | 9. Insurance, if required |
| 5. Bid and Signature and Acceptance forms | |

Any Addenda, which may be issued, shall be a part of the Contract Documents and shall take precedence over any other part of the Contract Documents wherever they conflict therewith.

The foregoing order of precedence shall govern the interpretation of the Contract Documents in all cases of conflict or inconsistency therein, except as may be otherwise expressly provided in other component parts of the Contract Documents.

32. NO WAIVER; CUMULATIVE REMEDIES:

No failure to exercise, and no delay in exercising, any right, power or privilege hereunder, shall operate as a waiver thereof; nor shall any single or partial exercise of any right, power or privilege hereunder preclude or require any other or further exercise thereof or the exercise of any other right, power or privilege. The remedies under the terms of this Contract are not exclusive of any other remedy. Each and every remedy is cumulative and in addition to any other remedy, existing now or hereafter, at law, or in equity.

33. SEVERABILITY:

If any provision of this Contract shall be held or deemed to be or shall in fact be inoperative or unenforceable as applied in any particular case in any jurisdiction or jurisdictions or in all cases because it conflicts with any other provision or provisions hereof or of any constitution, statute, ordinance, rule of law or public policy, or for any other reason, such circumstances shall not have the effect of rendering any other provision or provisions herein contained invalid, inoperative, or unenforceable to any extent whatever. The invalidity of any one or more phrases, sentences, clauses or sections contained in this Contract shall not affect the remaining portions of this Contract or any part thereof.

34. EXECUTION:

All businesses which submit responses or bids and all businesses awarded contracts by the Authority are hereby notified that no contract, modification, amendment, change order or extension, if any, shall be effective, or in any way obligate the Authority, until it has been executed by the Authority's signatory duly authorized by the Authority's regulations, bylaws, and procedures.

35. SUBLETTING OR ASSIGNMENT OF CONTRACT OR CONTRACT FUNDS:

Neither this Contract nor any funds or claims in connection herewith shall be assigned or sublet in whole or in part without the prior written approval of the Vice President, Purchasing & Supply Chain, and in no case shall such written approval relieve the Contractor from its obligations or change the terms of the Contract Documents. The Contractor must include all applicable requirements in any subcontract.

36. PARTICIPATION BY OTHER AGENCIES:

Other local government agencies may negotiate their own agreements with the Contractor based on the terms and conditions in this Agreement. Other agencies will issue their own contracts directly to the Contractor. Participation by other agencies shall have no adverse effect on the Authority. The Authority will not be responsible for any obligation due from any other agency to the Contractor. The Authority will have no liability for the acts or omissions of any other agency.

Prior to entering into a contract with another agency in connection with this provision, the Authority recommends, but does not require, that the Contractor ask the other agency to confirm that it has determined that use of this provision is in compliance with all applicable procurement rules and regulations, including the rules and regulations of any grantor such as the Federal Transit Administration. The Authority makes no warranty or representation that the Authority's selection process for this Contract will achieve such compliance.

37. ENTIRE AGREEMENT:

The Contract Documents shall constitute the entire agreement between the parties and no other warranties, inducements, considerations, promises or interpretations shall be implied or impressed upon these Contract Documents that are not expressly addressed herein.

SPECIAL CONDITIONS
DISADVANTAGED BUSINESS ENTERPRISE COMMITMENT
INVITATION FOR BIDS
REQUISITION NUMBER: C15RT101631000

I. POLICY AND TERMS

- A. The policy of the Chicago Transit Authority is to create a level playing field on which Disadvantaged Business Enterprises (DBE) as defined in United States Department of Transportation (USDOT) Regulation 49 C.F.R. Part 26 can compete fairly for CTA contracts, regardless of funding source.
- B. The Authority has established the following DBE contract goal for this project:

Disadvantaged Business Enterprise Goal: 1%

- C. The DBE contract goal shall be expressed as a percentage of the total contract price. However, in the event this is a revenue generating contract, the DBE contract goal is based on the Bidder's operating expenses and not on the total anticipated revenue to be generated by the contract. The Bidder may meet the DBE goal by evidencing participation by one or more certified DBEs. The Bidder may also meet the goal by documenting good faith efforts to meet the goal as described in 49 C.F.R. Part 26 and as set forth in Section V below and/or by a combination of DBE participation and good faith efforts documentation. **Any evidence of good faith efforts must be submitted with the sealed bid or the bid will be rejected in its entirety.**
- D. The DBE contract goal shall apply to the total dollar value of this contract, inclusive of all amendments, modifications, options, and change orders. The Bidder agrees to make its best effort to include DBE participation in any contract modification work.
- E. The goal may be met, as further explained in Section IV hereof, by the Bidder's status as a DBE, by a Joint Venture with one or more DBEs, by subcontracting a portion of the work to one or more DBEs, by the purchase of materials used in the performance of the contract from one or more DBEs or by any combination of the above or through sufficient documentation of its good faith efforts to meet the DBE goal as defined in Section V hereof.
- F. A Bidder who fails to meet the DBE goal and fails to demonstrate sufficient and reasonable good faith efforts to meet the goal shall not be eligible to be awarded the contract. All documentation of good faith efforts by a Bidder **must** be included in the envelope or package containing the bid.
- G. The Authority prohibits agreements between a Bidder and a DBE in which the DBE promises not to provide subcontracting quotations to other Bidders.

II. DEFINITIONS

- A. **"Area of Specialty"** means the description of the DBE's business, which has been determined by the General Manager, DBE Program, to be most reflective of the DBE's claimed specialty or expertise. Credit toward the DBE contract goal for this contract shall be limited to the participation of firms performing within their Area of Specialty. The Authority reserves the right to investigate and determine active DBE participation and applicable DBE credit specifically identified for this contract prior to award.

NOTICE: The Authority does not make any representations concerning the ability of any DBE to perform work within its Area of Specialty. It is the responsibility of the Bidder to determine the capability and capacity of the DBE firms to satisfactorily perform the work proposed.

- B. **"Authority"** means the Chicago Transit Authority.
- C. **"Bid"** includes the following Authority purchasing requests: Invitation for Bids (IFB).
- D. **"Bidder"** includes bidders and contractors. The terms "Bidder" and "Contractor" may be used interchangeably in these Special Conditions.
- E. **"Commercial Useful Function" or "CUF"** means that a DBE is responsible for execution of a distinct element of the work of a Contract and carries out its responsibilities by actually performing, managing, and/or supervising the work involved. With respect to materials and supplies used on a contract, the DBE must be responsible for negotiating price, determining quantity and quality, ordering materials and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, the Authority will evaluate the amount of work subcontracted, industry practices, and other relevant factors. However, it is not a commercially useful function when a DBE's role is limited to that of an extra participant through which funds are passed to obtain the appearance of DBE participation on the Contract.
- F. **"Disadvantaged Business Enterprise" or "DBE"** means a small business certified by the Illinois Universal Certification Program (IL UCP) as a business owned and controlled by socially and economically disadvantaged individuals in accordance with USDOT Regulation 49 CFR, Part 26.
- G. **"Directory"** means the Directory of Certified Disadvantaged Business Enterprises maintained and published by IL UCP and entitled the "IL UCP DBE Directory." The directory will be available on the Authority's web site. Bidders are responsible for verifying the current certification status of all proposed DBE's.
- H. **"Funding Source"** means any source of funds used for an Authority contract. It includes, but is not limited to, funds provided by the US Department of Transportation (DOT), the Federal Transit Administration (FTA), the Illinois Department of Transportation (IDOT), the Regional Transportation Authority (RTA), the City of Chicago (City), the Federal Emergency Management Agency (FEMA), the Illinois Emergency Management Agency (IEMA), the US Department of Homeland Security (DHS) or the Department of Commerce and Economic Opportunity (DCEO).
- H. **"Good Faith Efforts"** means efforts to achieve a DBE contract goal as specified in 49 CFR, Part 26 and Section V hereof.

I. **"IL UCP"** means the Illinois Unified Certification Program.

J. **"Joint Venture"** means an association of two or more businesses to carry out a single business enterprise for profit, and for which purpose they combine their expertise, property, capital, efforts, skill and knowledge. Bidders may develop joint venture agreements as an instrument to provide participation by DBEs in contract work. A joint venture seeking to be credited for DBE participation may be formed among DBE firms or between a DBE firm and non-DBE firm.

In order to qualify for credit as a DBE, the DBE must be responsible for a distinct, clearly defined portion of the work and the DBE must share in the capital contribution, control, management, risks and profits of the joint venture commensurate with its ownership interest.

K. **"Purchasing Agent"** means the Authority employee who holds the position of Vice President, Purchasing, or designee.

L. **"Small Business Concern"** means a small business as defined pursuant to Section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto except that a small business concern shall not include any concern or groups of concerns controlled by the same socially and economically disadvantaged individual or individuals which has annual average gross receipts in excess of \$22.41 million, or as revised from time to time, over the three (3) previous fiscal years.

M. **"Socially and Economically Disadvantaged Individuals"** means any individual who is a citizen of the United States (or lawfully admitted permanent residents) and who is in the following groups, the members of which are rebuttably presumed to be socially and economically disadvantaged:

1. **"Black Americans"**, which includes persons having origins in any of the Black racial groups of Africa;
2. **"Hispanic Americans"**, which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;
3. **"Native Americans"**, which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;
4. **"Asian-Pacific Americans"**, which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Thailand, Malaysia, Indonesia, Vietnam, Laos, Cambodia (Kampuchea), the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific (Republic of Palau), and the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Jauvlu, Nauru, Federated States of Micronesia or Hong Kong; and
5. **"Subcontinent Asian Americans"**, which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka.
6. **"Women"**
7. Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

The Director of Diversity may determine on a case-by-case basis that individuals who are not members of one of the above-listed groups are socially and economically disadvantaged.

* Presumption applies to federally funded contracts only.

N. "Subcontractor" means the individual or firm that has a subordinate contract to that of the Contractor under which the materials or equipment are supplied or services or labor is performed.

O. "USDOT" or "DOT" refers to the U.S. Department of Transportation.

III. JOINT VENTURES

The Director of Diversity will evaluate the Joint Venture agreement submitted on behalf of the proposed Joint Venture and all related documents to determine whether these DBE requirements have been satisfied. In addition, the Director of Diversity will consider the record of the joint venturers as joint venturers on other Authority contracts, if any.

NOTE: DBE/non-DBE Joint Ventures are creditable at any tier. Whenever a Joint Venture is proposed as the prime Contractor, Authority requires that each joint venturer sign the bid submitted to the Authority.

IV. COUNTING DBE PARTICIPATION TOWARD THE CONTRACT GOAL

The inclusion of any DBE by the Bidder in its bid documents shall not conclusively establish the Bidder's eligibility for full DBE credit for the firm's participation in the contract. The amount of DBE participation credit shall be based upon an analysis by the Director of Diversity of the specific duties which will be performed by the DBE.

The Bidder may count toward its DBE goal only expenditures to firms which are currently certified by the IL UCP and which perform a CUF.

To determine whether a firm is performing a CUF, the Director of Diversity will evaluate the amount of work subcontracted, industry practices and other relevant factors. The Director of Diversity reserves the right to deny or limit DBE credit to the Bidder where any DBE is found to be engaged in substantial pass-through activities with others.

DBE participation shall be counted toward the DBE goal in the contract as follows:

- A. Once a DBE is determined to be eligible in accordance with these rules, the total dollar value of the contract awarded to the DBE may be counted toward the DBE goal except as indicated below.
- B. A Bidder may count toward its DBE goal that portion of the total dollar value of a contract with an eligible Joint Venture equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces.
- C. Consistent with normal industry practices, a DBE may enter into subcontracts. If a DBE subcontracts more than thirty percent (30%) or a significantly greater portion of the work of the contract than

would be expected on the basis of normal industry practices, the DBE shall be presumed not to be performing a commercially useful function. Evidence may be presented by the Bidder involved to rebut this presumption.

- D. When a DBE subcontracts a part of the work under the contract to another firm, the value of the subcontracted work may only be counted towards the DBE goal if the DBE's Subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count towards the DBE goal.
- E. The Bidder may count one-hundred percent (100%) of its expenditures for materials and supplies required under the contract and which are obtained from a DBE manufacturer towards the DBE goal. The Bidder may count sixty percent (60%) of its expenditures for material and supplies under the contract obtained from a DBE regular dealer towards its DBE goal. The terms "manufacturer" and "regular dealer" are defined in 49 C.F.R. Part 26.55(e)(1)(ii) and (2)(ii).
- F. The Bidder may count towards its DBE goal expenditures to DBEs which are not manufacturers or regular dealers, such as fees or commissions charged for services and assistance in the procurement of essential personnel, facilities, equipment, materials or supplies and transportation charges as set forth in 49 C.F.R. Part 26. However, the Director of Diversity must determine the fee or charge to be reasonable and not excessive as compared with fees or charges customarily allowed for similar services.
- G. The Bidder must use good business judgment when negotiating with Subcontractors and take a DBE's price and capabilities into consideration. The fact that there may be some additional costs involved in finding and using DBE firms is not sufficient reason to fail to meet the DBE goal set forth in the contract, as long as such costs are reasonable.

V. GOOD FAITH EFFORTS

In order to be responsive, a Bidder must make *good faith efforts* to meet the DBE contract goal set forth in the contract. The Bidder must document the good faith efforts it made in that regard. Thus, the Bid submitted to the Authority must be accompanied by written documentation prepared by the Bidder evidencing all of its sufficient and reasonable good faith efforts toward fulfilling the goal. These efforts must be active steps, and ones, which could reasonably be expected to lead to sufficient DBE participation to meet the contract DBE contract goal. Mere *pro forma* efforts are not acceptable and will be rejected by the Director of Diversity.

Good Faith Efforts require that the Bidder consider all qualified DBEs, who express an interest in performing work under the contract. This means that the Bidder cannot reject a DBE as unqualified unless the Bidder has sound reasons based on a thorough investigation of the DBE's capabilities. Further, the DBE's standing within its industry, membership in specific groups, organizations or associations and political or social affiliation (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Contractor's efforts to meet the contract DBE contract goal.

The following list, which is not exclusive or exhaustive, sets forth the types of actions, which indicate good faith efforts on the part of a Bidder to meet the DBE goal. The extent and type of actions required will vary depending on such things as industry practice; the time available for submitting a bid and the type of contract involved.

- A. Attendance at a pre-bid meeting, if any, scheduled by the Authority to inform DBEs of subcontracting opportunities under a given solicitation.
- B. Advertisement in general circulation media, trade association publications, and minority-focus media for at least twenty (20) days before bids are due. If 20 days are not available, publication for a shorter reasonable time is acceptable.
- C. Written notification to capable DBEs that their interest in the contract is solicited.
- D. Documentation of efforts to negotiate with DBEs for specific sub-contracts *including at a minimum*:
 - 1. The names, addresses, and telephone numbers of DBEs that were contacted and the date(s) of contact;
 - 2. A description of the information provided to DBEs regarding the plans and specifications for portions of the work to be performed; and
 - 3. A statement explaining why additional agreements with DBEs were not reached.
- E. For each DBE the Bidder contacted but rejected as unqualified, the reason for the Bidder's conclusion.
- F. Documentation of efforts made to assist the DBEs contacted that needed assistance in obtaining bonding or insurance required by the Bidder or the Authority.
- G. Documentation of efforts to utilize the services of small business organizations, community and contractor groups to locate qualified DBEs.
- H. Documentation that the Bidder has broken out contract work items into economically feasible units in fields where there are available DBE firms to perform the work.
- I. Evidence that adequate information was provided to interested DBEs about the plans, specifications and requirements of the contract, and that such information was communicated in a timely manner.
- J. Documentation of any efforts made to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services from third parties.

VI. GOOD FAITH EFFORTS RECONSIDERATION

If it is determined that the apparent successful low Bidder(s) has failed to show good faith efforts to meet the contract DBE goal through participation, documentation of good faith efforts to meet the contract goal and/or a combination of the two, the Authority will provide it with **ONE** opportunity for administrative reconsideration before the Authority awards the contract. This reconsideration will include the following:

- A. The Bidder will be permitted to either provide written evidence or to present oral argument at a pre-scheduled time that the documentation it submitted with its bid met the DBE goal and/or

documented good faith efforts to do so. **No new evidence of good faith efforts may be presented after the bid submission deadline.**

- B. The Authority's Reconsideration Officer will review the evidence presented by the Bidder and issue a written determination that the Bidder has: 1) met the DBE goal; 2) not met the DBE goal but has made adequate good faith efforts to do so; or 3) has not met the DBE goal and the good faith efforts made were not adequate.
- C. The decision of the Authority's Reconsideration Officer is final and may not be appealed to the Authority or its funding agencies.
- D. The Authority will not award a contract to any Bidder who does not meet the contract DBE contract goal through participation by DBEs on the proposed contract or documentation of sufficient good faith efforts to meet that goal or a combination of the two. Thus, it is essential that all Bidders submit ALL relevant documentation concerning DBE participation on the proposed contract and/or good faith efforts to meet the DBE goal in the envelope or package containing their sealed bids.

VII. PROCEDURE TO DETERMINE BID COMPLIANCE

- A. If the Bidder is a Joint Venture, the Bidder as well as the Joint Venture partner **MUST** complete and sign Schedule B.
- B. A DBE Subcontractor of any tier, DBE Joint Venture partner and/or the Bidder if it is a DBE **MUST** complete and sign Schedule C.
- C. The Bidder **MUST** complete and sign Schedule D.
- D. All completed Schedules **MUST** be submitted at the same time as or prior to submittal of the sealed bid. In addition, any documentation evidencing the Bidder's good faith efforts to meet the contract DBE goal must be submitted with the bid. Any bids submitted without completed and executed Schedules as indicated above and/or evidence of good faith efforts will be deemed non-responsive and their bids will be rejected by the Authority.
- E. Letters of Certification
 - 1. A copy of each proposed DBE firm's current Letter of Certification or re-certification from the IL UCP should be submitted with the bid. **ALL CERTIFICATIONS BY THE IL UCP MUST BE PRE-CERTIFICATIONS. This means that the DBE's certification must be issued by the IL UCP before the due date for bids.**
 - 2. All Letters of Certification or Re-certification issued by the IL UCP must include a statement of the DBE firm's area of specialization and appropriate DBE goal credit (see Section IV. COUNTING DBE PARTICIPATION TOWARD THE CONTRACT GOAL). The DBE firm's scope of work set forth on Schedule C must conform to its stated area of specialization. Where a DBE is proposed to perform work not covered by its area of specialization, the DBE firm must request an expansion of its area of specialization from its certifying agency in writing prior to the time set by the Authority for bid opening. Further, the DBE's request for a new area of

specialization must be approved by the certifying agency so that the DBE firm is certified in the expanded area of specialization prior to the **DUE DATE FOR BIDS**.

F. Joint Ventures

3. Where the Bidder proposes to include in its bid a DBE, which is a joint venturer, the Bidder must submit a fully executed copy of the Joint Venture agreement with its bid. The Joint Venture agreement must show that the DBE firm will be responsible for a clearly defined portion of the work to be performed, and that the DBE firm's capital contribution, control, management, risks and profits are commensurate with its ownership interest.
4. Further, the proposed Joint Venture agreement shall include specific details related to: 1) contributions of capital and equipment; 2) work items to be performed by the DBE's own forces; 3) work items to be performed under the supervision of the DBE; 4) the DBE management, supervisory and operating personnel to be dedicated to the performance of the project; and (5) the authority of each joint venturer to contractually obligate the Joint Venture and to expend funds. Failure to submit a copy of the Joint Venture agreement will cause the firm to be considered by the Authority to be non-responsible.

G. Bidders List

The Bidder must also create a Bidders List, consisting of information about all Subcontractors that submitted a Bid or quote. The Bidders List will include the name, address, DBE/non-DBE status, age of firm and the appropriate range of annual gross receipts. A form for creating the Bidder's List included in this IFB.

VIII. REPORTING REQUIREMENTS DURING THE TERM OF THE CONTRACT

- A. The Bidder shall, within seven (7) calendar days of contract award, or prior to any work being performed by any Subcontractor of any tier, execute written subcontracts or purchase orders with the Subcontractors included in the Bid. In the event the Bidder cannot complete the agreement with one or more Subcontractors within this seven(7) day period, the Bidder must provide a written explanation for the delay and an estimated date by which the written agreement will be completed to the Director of Diversity. These written agreements shall be made available to the Director of Diversity upon request. All contracts between the Bidder and its Subcontractors must contain a prompt payment clause as set forth in Section IX herein.
- B. During the term of annual contracts, the Contractor must utilize the "Chicago Transit Authority's Disadvantaged Business Enterprise System (B2GNOW)" <https://cta.dbesystem.com/> which provides the Contractor an easy to use web-based service for reporting payments rendered to all Subcontractors. The frequency with which these reporting will vary based on each individual contract, but in no event will reporting be required less frequently than quarterly. **Failure to follow these directions may delay payment.**
- C. In the case of a one-time procurement with either a single or multiple deliveries, the contractor must utilize the "Chicago Transit Authority's Disadvantaged Business Enterprise System (B2GNOW)" <https://cta.dbesystem.com/> which provides the Contractor with an easy to use web-

based service for reporting payments rendered to all Subcontractors. The required entries on B2GNOW must be completed prior to or concurrently with the Contractor's submittal of its final invoice to the Authority user department identified in the contract. PLEASE NOTE: Two different processes must be followed. (1)The original invoices must be submitted directly to the Authority department identified in the contract and (2) a report of Subcontract Payments must be entered onto B2GNOW. **Failure to follow these directions may delay final payment.**

The address for the Director of Diversity is: **CTA Director of Diversity, Diversity Department, 567 W. Lake Street, Chicago, IL 60661-1465.**

IX. PROMPT PAYMENT TO SUBCONTRACTORS

A. Federally Funded Construction Contracts and All Non-Construction Contracts

1. The Contractor is required to pay all Subcontractors for all work that the Subcontractor has satisfactorily completed **on all contracts except construction contracts funded with other than federal funds** no later than fourteen (14) calendar days after the Contractor has received payment from the Authority. All of the Contractor's contracts with its Subcontractors must state that the Subcontractor will receive payment within fourteen (14) calendar days of the date that the Contractor has received payment from the Authority.
2. In addition, all Retainage amounts **on all contracts except construction contracts funded with other than federal funds** must be paid by the Contractor to the Subcontractor no later than fourteen (14) calendar days after the Subcontractor has, in the opinion of the Authority's authorized representative, satisfactorily completed its portion of the Work. All of the Contractor's contracts with its Subcontractors must state that the Subcontractor will receive payment of Retainage within fourteen (14) calendar days of the date that the Subcontractor has, in the opinion of the Authority's authorized representative, satisfactorily completed its portion of the Work.

B. Non-federally Funded Construction Contracts

1. The Contractor is required to pay all Subcontractors for all work that the Subcontractor has satisfactorily completed **on a construction contract funded with non-federal funds** no later than fourteen (14) calendar days after the Contractor has received payment from the Authority. All of the Contractor's subcontracts must state that the Subcontractor will receive payment within fourteen (14) calendar days of the date that the Contractor received payment from the Authority.
- C. A delay in or postponement of payment to the Subcontractor requires good cause and prior written approval of the General Manager, Purchasing.
 - D. The Contractor is required to include, in each subcontract, a clause requiring the use of appropriate arbitration mechanisms to resolve all payment disputes.
 - E. The Authority will not pay the Contractor for work performed unless and until the Contractor ensures that the Subcontractors have been promptly paid for the work they have performed under all previous payment requests, as evidenced by the filing with the Authority of lien waivers,

canceled checks (if requested) and the Contractor's sworn statement that it has complied with the prompt payment requirements. Prime Contractors must submit a prompt payment affidavit (form to be provided by the Authority) which identify each Subcontractor (both DBE and non-DBE) and the date and amount of the last payment to such Subcontractor, with every payment request filed with Authority, except for the first payment request, on every contract with the Authority.

- F. Failure to comply with these prompt payment requirements is a breach of the Contract which may lead to any remedies permitted under law, including, but not limited to, Contractor debarment. In addition, Contractor's failure to promptly pay its Subcontractors may also be subject to the provisions of 50 ILCS 505/9.

X. DBE SUBSTITUTIONS

- A. Arbitrary changes by the Bidder of the commitments previously indicated in **Schedule D** are prohibited. No changes may be made by the Bidder to the DBE firms listed on Schedule D after the opening of Bids but prior to contract award. However, in the event the Purchasing Agent, after consulting with the Diversity Department, determines that a critical DBE Subcontractor is non-responsible, the Authority may require that Bidder replace the non-responsible DBE Subcontractor prior to contract award. In that event, Bidder must replace the non-responsible DBE Subcontractor with a responsible, certified DBE Subcontractor or document adequate good faith efforts as set forth in Section V hereof, must submit all information required in subsection C.5 hereof, and must receive the prior written approval of the Director of Diversity for such substitution.
- B. Further, after award, the Contractor shall neither terminate the subcontract for convenience, nor reduce the scope of the work to be performed by the DBE, nor decrease the price to the DBE, without receiving prior written approval of the Director of Diversity. Such approval is required even if the DBE agrees with the change to the DBE's contract desired by the Contractor.
- C. It may become necessary, at times, to substitute a new Subcontractor in order to complete the contract work. The substitution procedure to be followed is:
 - 1. The Contractor must immediately notify the Director of Diversity, in writing, of the proposed substitution of Subcontractor. The Contractor's notification must include the specific reasons it intends to reduce the scope of or terminate a DBE subcontract; adequate documentation to support the Contractor's proposed action; and a proposed substitute firm to complete the DBE's portion of work.
 - 2. The following is a non-exclusive list of the types of reasons, which justify substitution: the DBE was found not to be able to perform, or not to be able to perform on time; the DBE's work product was not acceptable; the DBE demands an unreasonable escalation of its price.
 - 3. The following is a non-exclusive list of the types of reasons which do not justify substitution: a replacement firm has been recruited by the Contractor to perform the same work under more advantageous terms; performance issues by the DBE were disputed and every reasonable effort to have the dispute resolved or mediated has not been taken; the DBE has requested a reasonable price escalation which may be justified due to unforeseen circumstances (e.g., a change in scope of DBE's work).

4. If the Subcontractor to be substituted for the DBE is not a DBE, the Contractor must document adequate good faith efforts as set forth in Section V hereof.
 5. The Contractor's request for approval of a substitution must include the name, address, and principal official of the proposed substitute Subcontractor and the dollar value and scope of work of the proposed subcontract. If the new Subcontractor is a DBE, all DBE affidavits and documents required by **Schedule C** shall be attached.
 6. The Authority will evaluate the submitted documentation and respond within fifteen (15) calendar days to the request for approval of the substitution. The Authority's response may approve the request, seek more information, request an interview to clarify the problem or reject the proposed DBE substitution, with the reasons for the rejection stated in the Authority's response. In the case of an expressed emergency need to receive the necessary decision for the sake of job progress, the Authority will respond as soon as practicable.
 7. Actual substitution by the Contractor may not be made prior to the Authority's approval. Once notified of the Authority's approval, the substitute subcontract must be executed within five (5) calendar days, and a copy submitted to the Director of Diversity.
- D. The Authority will not approve extra payment for escalated costs incurred by the Contractor when a substitution of Subcontractors becomes necessary in order to comply with the DBE requirements of the contract.

XI. NON-COMPLIANCE

- A. Failure to comply with the DBE requirements of the contract or with the DBE substitution procedures or failure to use DBEs as stated in the Bid constitutes a material breach of contract. The Director of Diversity shall have the discretion to recommend to the Authority's Purchasing Agent that the Purchasing Agent apply suitable sanctions to the Contractor if the Contractor is found to be in non-compliance with the DBE requirements. Such sanctions include, but are not limited to, withholding payment to the Contractor until corrective action is taken; suspension and/or termination of the contract, in whole or in part; and debarring or suspending the Contractor from entering into future contracts with the Authority.
- B. The failure by the Contractor to use a DBE Subcontractor to the extent the Contractor committed to use said DBE, gives the underutilized DBE specific contract remedies, including the right to damages, the right to resolve the dispute by binding arbitration before an independent arbitrator and the right to recover its reasonable expenses, including attorneys' fees, if the DBE is the prevailing party, as follows:
1. Damages. In the event the Contractor has not complied with the contractual DBE percentage and the change to the contractual DBE usage has not been approved by the Authority, an affected DBE may recover from the Contractor damages suffered by said DBE as a result of being underutilized. This provision is intended for the benefit of any DBE affected by underutilization and grants such entity third party beneficiary rights. Any rights conferred by this provision are non-waivable and take precedence over any conflicting provisions in the agreement between the Contractor and the DBE.

2. Arbitration procedures. If requested by the DBE, the DBE shall have the right to initiate binding arbitration of any dispute concerning damages suffered as a result of being underutilized. A DBE desiring to arbitrate must notify the Contractor in writing to initiate the arbitration process. Unless the affected parties agree to a different schedule in writing, within ten (10) days of receipt by the Contractor of the intent to arbitrate from the DBE, the above-described disputes must be arbitrated in accordance with the Commercial Arbitration Rules of the American Arbitration Association ("AAA"), a not-for-profit agency, with an office at 225 North Michigan Avenue, Suite 2527, Chicago, Illinois 60601-7601. All such arbitrations must be initiated by the DBE filing a demand for arbitration with the AAA; must be conducted by the AAA; and must be held in Chicago, Illinois.
 3. Fees. All fees of the arbitrator are the initial responsibility of the DBE; provided, however, that the arbitrator is authorized to award reasonable expenses, including attorneys' and arbitrator fees, as damages to a prevailing DBE.
 4. Entry of judgment. Judgment upon the award rendered by the arbitrator may be entered in any court of competent jurisdiction.
- C. In addition, federal and state laws apply to false representations, deception and fraud:
1. Illinois Law. Under Illinois law, it is a Class 2 felony to make certain false representations as to the status of a person or entity in obtaining a governmental contract. In addition, any person convicted of this felony offense must pay to the governmental unit that issued the contract a penalty equal to one and a half times the amount of the contract. (720 ILCS 5/17-29)
 2. Federal Law. False, fraudulent, or deceitful statements made in connection with DBE participation in DOT assisted programs could also result in liability under 49 CFR Part 31, Program Fraud and Civil Remedies and possible prosecution under 18 U.S.C. 1001.
- D. If the Contractor does not pay any Subcontractor listed on a pay request or return a Subcontractor's retainage within the time limits required under the prompt payment provision for federally funded construction contracts and/or non-construction contracts however funded set forth in subsection A of Section IX hereof, the Contractor must pay the Subcontractor an additional amount for interest at the lower of one percent (1%) per month or the highest lawful rate on the outstanding balance, for each month, prorated per diem for any partial month, that the Contractor fails or refuses to pay the Subcontractor. All agreements between the Contractor and its Subcontractors must provide for interest as set forth herein for all contracts funded with federal funds and/or all non-construction contracts however funded.
- E. If the Contractor does not pay any Subcontractor listed on a pay request within the time limits required under the prompt payment provision for construction contracts funded with non-federal funds set forth in subsection B of Section IX hereof, the Contractor must pay the Subcontractor an additional amount for interest in the amount of two percent (2%) per month on the outstanding balance for each month, prorated per diem for any partial month, that the Contractor fails or refuses to pay the Subcontractor. All agreements between the Contractor and its Subcontractors must provide for interest as set forth here if the construction contract is funded with non-federal funds.

- F. The Contractor or Subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Authority deems appropriate.

The Contractor agrees to include this assurance in all subcontracts.

- G. The Contractor further agrees to include the following assurance in all of its subcontracts: "The Contractor and Subcontractor shall comply with the requirements of the Illinois Human Rights Act (775 ILCS 5/1-100, et seq.) and the Illinois Public Works Employment Discrimination Act (775 ILCS 5/10/0.01, et seq.) and shall refrain from unlawful discrimination under Illinois law in the performance of this contract. The failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the Authority deems appropriate."

XII. RECORD KEEPING

The Contractor shall maintain records of all relevant data with respect to the utilization of DBEs and shall retain these records for a period of at least three (3) years after final acceptance of the work. Full access to said records shall be granted to the Authority, its Federal and/or State funding agencies, the U.S. Department of Justice, the USDOT, the Illinois Office of Inspector General and any duly authorized representatives thereof.

XIII. MINORITY FINANCIAL INSTITUTIONS

The Bidder is encouraged to utilize financial institutions owned and controlled by socially and economically disadvantaged individuals. Use of such institutions may be considered by the Authority as evidence of Bidder's willingness to do business with DBEs. Information about such institutions is available in the Authority's DBE Program Directory, which is available on-line at <http://www.federalreserve.gov/releases/mob/current/default.htm>.

DBE Assistance Agencies

The following agencies are available to prospective bidders for assistance.

<p>Alliance of Business Leaders & Entrepreneurs (ABLE) 150 N. Michigan Ave., Suite 2800 Chicago, IL 60601 Contact: Donna Gaines Phone: (312) 624-7733 Fax: (312) 275-7841 Email: donna@donnamgaines.com Website: www.ablechicago.com Services</p> <ul style="list-style-type: none"> • Business Development 	<p>Black Contractor United (BCU) 11906 S. Michigan Ave. Chicago, IL 60628 Contact: Belinda Henderson Phone: (773) 483-4000 Fax: (773) 483-4150 Email: belinda_bcu@att.net / bcunewera@att.net Website: www.blackcontractorsunited.com Services</p> <ul style="list-style-type: none"> • Business Development
<p>Chatham Business Association (CBA) 8441 S. Cottage Grove Ave. Chicago, IL 60619 Contact: Melinda Kelly Phone: (773) 994-5006 Fax: (773) 994-9871 Email: melkelcba@sbcglobal.net Website: www.cbaworks.org Services</p> <ul style="list-style-type: none"> • Business Development • Certification Assistance • Technical Assistance 	<p>Chicago Minority Business Development Council, Inc. (CMBDC) 105 W. Adams St., Suite 2300 Chicago, IL 60603 Contact: Shelia C. Hill Morgan Phone: (312) 755-8880 Fax: (312) 755-8890 Email: shillmorgan@chicagomsdc.org Website: www.cmbdc.org Services</p> <ul style="list-style-type: none"> • Business Development • Certification Assistance
<p>Chicago Urban League (CUL) 4510 S. Michigan Ave. Chicago, IL 60653 Contact: Kenya Spann Phone: (773) 285-5800 Fax: (773) 285-7772 Email: kspann@thechicagourbanleague.org Website: www.thechicagourbanleague.org Services</p> <ul style="list-style-type: none"> • Business Development 	<p>Federation of Women Contractors (FWC) 5650 S. Archer Ave. Chicago, IL 60638 Contact: Joan Anderse Phone: (312) 360-1122 Fax: (312) 360-0239 Email: joan@andersenpump.com Website: www.fwcchicago.com Services</p>
<p>Hispanic-American Construction Industry Association (HACIA) 650 West Lake Street, Suite 415 Chicago, IL 60661 Contact: Jorge Perez Phone: (312) 575-0389 Fax: (312) 575-0544 Email: jperez@haciaworks.org Website: www.haciaworks.org Services</p> <ul style="list-style-type: none"> • Business Development • Certification Assistance • Technical Assistance 	<p>Illinois Hispanic Chamber of Commerce (IHCC) 855 W. Adams, Suite 100 Chicago, IL 60607 Contact: Omar Duque Phone: (312) 425-9500 Fax: (312) 425-9510 Email: asoto@ihccbbusiness.net Website: www.ihccbbusiness.net Services</p> <ul style="list-style-type: none"> • Business Development • Certification Assistance • Technical Assistance

DBE Assistance Agencies (Continued)

<p>Latin American Chamber of Commerce (LACC) 3512 W. Fullerton Ave. Chicago, IL 60647 Contact: D. Lorenzo Padron Phone: (773) 252-5211 Fax: (773) 252-7065 Email: D.LorenzoPadron@LACCUSA.com Website: www.LACCUSA.com</p> <p>Services</p> <ul style="list-style-type: none"> • Business Development • Certification Assistance • Technical Assistance 	<p>Philippine American Chamber of Commerce of Greater Chicago (PACCGC) 3413 N. Milwaukee Ave Chicago, IL 60641 Contact: James Villar Phone: (773) 545-4330 Fax: (773) 545-4373 Email: jamesvillar@paccgc.org Website: www.paccgc.org</p> <p>Services</p> <ul style="list-style-type: none"> • Business Development • Certification Assistance • Technical Assistance
<p>Women's Business Development Center (WBDC) 8 S. Michigan Ave., 4th Floor Chicago, IL 60603 Contact: Freida Curry Phone: (312) 853-3477 Fax: (312) 853-0145 Email: fcurry@wbdc.org Website: www.wbdc.org</p> <p>Services</p> <ul style="list-style-type: none"> • Business Development • Certification Assistance • Technical Assistance 	<p>Women Construction Owners & Executives (WCOE) 308 Circle Avenue Forest Park, IL 60130 Contact: Mary Kay Minaghan Phone: (708) 366-1250 Fax: (708) 366-5418 E-mail: mkm@mkmservices.com Website: www.wcoeusa.org</p> <p>Services</p> <ul style="list-style-type: none"> • Business Development • Certification Assistance • Technical Assistance

Project information and current DBE directory of certified local and out-of-state companies are available.

<p>Chicago Transit Authority Project Information Purchasing Department 567 W. Lake St. Chicago, IL 60661-1465 Fax: (312) 681-2405</p> <p>Purchasing General Manager Randi Brokvist Phone: (312) 681-2420 E-mail: rbrokvist@transitchicago.com</p> <p>Purchasing General Manager Robert K. Miller Phone: (312) 681-2428 E-mail: rmiller@transitchicago.com</p>	<p>Chicago Transit Authority Diversity Programs Information Diversity Programs Department 567 W. Lake St. Chicago, IL 60661-1465 Fax: (312) 681-2605</p> <p>Contract Compliance Department Mary Person Phone: (312) 681-2612 E-mail: mperson@transitchicago.com</p> <p>DBE Certification Department Nelson Robles Phone: (312) 681-2616 E-mail: nrobles@transitchicago.com</p>
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DBE - SCHEDULE B

AFFIDAVIT OF DBE/NON-DBE JOINT VENTURE

This Schedule B need not be submitted if all joint venturers are DBEs. In such a case, however, the written joint venture agreement and a copy of the current IL UCP Letter of Certification for each DBE must be submitted.

ALL INFORMATION REQUESTED BY THIS SCHEDULE MUST BE ANSWERED IN THE SPACES PROVIDED BY JOINT VENTURERS AT ANY TIER. ADDITIONAL SHEETS MAY BE ATTACHED.

- I. Name of joint venture:** _____
Address of joint venture: _____

Phone number of joint venture: _____
- II. Identify each non-DBE venturer(s):**
Name _____ of _____ Firm: _____
Address: _____
Phone: _____
Contact person for matters concerning DBE compliance: _____
- III. Identify each DBE venturer(s):**
Name _____ of _____ Firm: _____
Address: _____
Phone: _____
Contact person for matters concerning DBE compliance: _____
- IV. Describe the role(s) of the DBE venturer(s) in the joint venture:**

- V. Attach a copy of the joint venture agreement.** In order to demonstrate the DBE venturer's share in the ownership, control management responsibilities, risks and profits of the joint venture, the proposed joint venture agreement must include specific details related to: (1) the contributions of capital and equipment; (2) work items to be performed by the DBE's own forces, (3) work items to be performed under the supervision of the DBE venturer; and (4) the commitment of management, supervisory and operative personnel employed by the DBE to be dedicated to the performance of the project.
- VI. Attach a copy of the current IL UCP Letter of Certification for each DBE Joint Venturer.**
- VII. Ownership of the Joint Venture:**
A. What is the percentage(s) of DBE ownership in the joint venture?
DBE ownership percentage(s): _____
Non-DBE ownership percentage(s): _____

DBE - SCHEDULE B

AFFIDAVIT OF DBE/NON-DBE JOINT VENTURE

VII. Ownership of the Joint Venture (continued):

B. Specify DBE/non-DBE percentages for each of the following (provide narrative descriptions and other detail as applicable):

1. Sharing of profit and loss: _____

2. Capital contributions:

(a) Dollar amounts of initial contribution: _____

(b) Dollar amounts of anticipated on-going contributions: _____

3. Contributions of equipment (*specify types, quality and quantities of equipment to be provided by each venturer*):

4. Other applicable ownership interests, including ownership options or other agreements, which restrict or limit ownership and/or control:

5. Provide copies of all written agreements between venturers concerning this project.

6. Identify each current Chicago Transit Authority contract and each contract completed during the past two (2) years by either of the joint venture partners participating in this joint venture:

VIII. Control of and Participation in the Joint Venture. Identify by name and firm those individuals who are, or will be, responsible for and have the authority to engage in the following management functions and policy decisions. (Indicate any limitations to their authority such as dollar limits and co-signatory requirements.):

A. Joint venture check signing:

B. Authority to enter contracts on behalf of the joint venture:

DBE - SCHEDULE B

AFFIDAVIT OF DBE/NON-DBE JOINT VENTURE

VIII. Control of and Participation in the Joint Venture *(continued)*

C. Signing, co-signing and/or collateralizing loans:

D. Acquisition of lines of credit:

E. Acquisition and indemnification of payment and performance bonds:

F. Negotiating and signing labor agreements:

G. Management of contract performance. *(Identify by name and firm only):*

1. Supervision of field operations:

2. Major purchases:

3. Estimating:

4. Engineering:

IX. Financial Controls of Joint Venture:

A. Which firm and/or individual will be responsible for keeping the books of account?

B. Identify the "managing partner," if any, and describe the means and measure of their compensation:

C. What authority does each venturer have to commit or obligate the other to insurance and bonding companies, financing institutions, suppliers, subcontractors, and/or other parties participating in the performance of this contract or the work of this project?

DBE - SCHEDULE B

- X. State the approximate number of personnel (by trade) needed to perform the joint venture's work under this contract. Indicate whether they will be employees of the majority firm, DBE firm, or the joint venture.

Trade	Non-DBE Firm (number)	DBE (number)	Joint Venture (number)
Professional			
Administrative/Clerical			
Unskilled Labor			

If any personnel proposed for this project will be employees of the joint venture:

- A. Are any proposed Joint Venture employees currently employed by either venturer? _____
Employed by non-DBE (number): _____ Employed by DBE: _____
- B. Identify by name and firm the individual who will be responsible for joint venture hiring: _____

- XI. Please state any material facts and additional information pertinent to the control and structure of this joint venture.

DBE - SCHEDULE B

AFFIDAVIT OF DBE/NON-DBE JOINT VENTURE

The undersigned affirm that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operations of our joint venture and the intended participation of each venturer in the undertaking. Further, the undersigned covenant and agree, under which work is done for CTA by the venturers, to provide to CTA current, complete and accurate information regarding actual joint venture work and the payment therefor, and any proposed changes to any provision of the joint venture, or those of each venturer relevant to the joint venture by authorized representatives of CTA or any of its funding agencies.

Any misrepresentation regarding the status of a person or an entity in order to qualify for DBE status may result in conviction for a Class 2 felony, including a penalty for one and a half times the value of the contract. Material misrepresentation on any matter will also be grounds for terminating any contract which may be awarded, and for initiating action under federal or state laws concerning false statements.

NOTE: *If, after filing this Schedule B and before the completion of the joint venture's work on the project, there is any change in the information submitted, the joint venture must inform the General Manager, Diversity Department directly in writing or through the prime contractor if the joint venture is a subcontractor.*

(Signature of Owner, President, or Authorized Agent of DBE)

(Name of DBE Firm)

(Printed Name of Owner, President, or Authorized Agent of DBE)

(Printed Title)

Date

Phone

(Signature of Owner, President, or Authorized Agent of non-DBE)

(Name of non-DBE Firm)

(Printed Name of Owner, President, or Authorized Agent of non-DBE)

(Printed Title)

Date

Phone

On this _____ day of _____, 20____, the above-signed

Officers of (Name of non-DBE firm) _____ and

(Name of DBE firm)

personally known to me as the persons described in the foregoing Affidavit, acknowledged that h/she executed the same in the capacity therein stated and for the purpose therein contained.

IN WITNESS OF, I hereunto set my hand and official seal.

OFFICIAL NOTARY SEAL:

Signature of Notary Public

My Commission Expires:

DBE - SCHEDULE C

Bidder's or Proposer's failure to submit all 3 pages of this Schedule C with its bid will result in the bid being rejected in its entirety.

**LETTER OF INTENT FROM DBE TO PERFORM AS SUBCONTRACTOR, SUPPLIER,
AND/OR CONSULTANT (If Prime Contractor is a DBE firm, only fill out Schedule D)**

NAME OF PROJECT / CONTRACT:**REQUISITION NO.:****JOB ORDER NO.:****TOTAL CONTRACT VALUE:**

FROM: (Name of DBE Firm)

TO: (Name of Prime Contractor)

and the Chicago Transit Authority

The DBE status of the undersigned is confirmed by the attached Letter of Certification dated _____ or the attached DBE Application (Exhibit A). (If proposing to perform as a DBE/non DBE Joint Venture, the Letter of Certification from the DBE venturer is attached along with a completed Schedule B and joint venture agreement).

The undersigned is prepared to provide the following described services or supply the following described goods in connection with the above named project/contract (attach additional pages if necessary):

NAICS CODES – List codes assigned to DBEs that can be used on this project:	DESCRIPTION OF WORK FOR ENTIRE CONTRACT TERM –Please describe in DETAIL what TYPE of WORK you will be performing for the entire length on this project:	QUANTITY	UNIT PRICE	Total DBE Contract Value listed separately for each item
				TOTAL DBE CONTRACT

MULTI-PHASE PROJECT(S) – For those projects that are multi-phase, please indicate the phase in which the DBEs will be performing work:

DBE - SCHEDULE C

Bidder's or Proposer's failure to submit all 3 pages of this Schedule C with its bid will result in the bid being rejected in its entirety.

LETTER OF INTENT FROM DBE (continued) / REQUISITION / JOB NO.:

Sub-Contracting Levels

NOTICE: IF THE DBE WILL NOT BE SUB-SUBCONTRACTING ANY OF THE WORK DESCRIBED IN THIS SCHEDULE, A ZERO (0) MUST BE SHOWN IN EACH BLANK BELOW.

%_____ of the dollar amount of the DBE's subcontract will be sublet to non-DBE contractors.

%_____ of the dollar amount of the DBE's subcontract will be sublet to DBE contractors.

NOTICE: If ANY dollar amount of the DBEs scope of work will be sublet, a brief explanation and description of the work to be sublet must be attached to this schedule.

NOTICE: Any misrepresentation regarding the status of a person or an entity in order to qualify for DBE status may result in conviction for a Class 2 felony, including a penalty for one and a half times the value of the contract. Material misrepresentation on any matter will also be grounds for terminating any contract which may be awarded, and for initiating action under federal or state laws concerning false statements.

The undersigned will enter into a formal written agreement for the above work with you as Prime Contractor, conditioned upon your execution of a contract with the Chicago Transit Authority, and will do so within (7) seven calendar days of your receipt of a signed contract from the Chicago Transit Authority or prior to any work being performed by the DBE subcontractor.

(Signature of Owner, President, or Authorized Agent of DBE)

(Name of DBE Firm)

(Printed Name of Owner, President, or Authorized Agent of DBE)

(Printed Title)

Date

Phone

If proposing to perform as a DBE/non-DBE Joint Venture:

(Signature of Owner, President, or Authorized Agent of non-DBE)

(Name of non-DBE Firm)

(Printed Name of Owner, President, or Authorized Agent of non-DBE)

(Printed Title)

Date

Phone

DBE - SCHEDULE C

LETTER OF INTENT FROM DBE (continued) / REQUISITION / JOB NO.:

Bidder's or Proposer's failure to submit all 3 pages of this Schedule C with its bid will result in the bid being rejected in its entirety.

THIS FORM MUST BE SIGNED AND NOTARIZED

DBE AFFIDAVIT

If awarded a contract or subcontract, I agree to promptly and directly provide the prime contractor and the CTA on an ongoing basis, current, complete and accurate information regarding (1) work performed on the project; (2) payments; and (3) proposed changes, if any, to the foregoing arrangements.

I shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. I shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by me to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the CTA deems appropriate.

(Signature of Owner, President, or Authorized Agent of DBE)

(Printed Name of Owner, President, or Authorized Agent of DBE)

(Date)

On this _____ day of _____, 20____, the above-signed Officer of

(Name of DBE firm)

personally known to me as the person(s) described in the foregoing Affidavit, acknowledged that h/she executed the same in the capacity therein stated and for the purpose therein contained.

IN WITNESS OF, I hereunto set my hand and official seal.

OFFICIAL NOTARY SEAL:

Signature of Notary Public

My Commission Expires:

DBE - SCHEDULE D

Bidder's or Proposer's failure to submit both pages of this Schedule D with its bid will result in the bid being rejected in its entirety.

DBE UTILIZATION PLAN

NAME OF PROJECT/ CONTRACT:

REQUISITION NO.:

JOB ORDER NO.:

TOTAL CONTRACT VALUE:

STATE OF:

COUNTY (CITY) OF:

*In connection with the above captioned contract, I HEREBY DECLARE AND AFFIRM that I am the
and duly authorized representative of*

(Title of Affiant)

(Name of Prime Contractor)

and that I have personally reviewed the material and facts set forth in and submitted with the attached Small Business Enterprises (DBE) Schedules for each DBE. Listed below is/are the agreements(s) that correspond(s) with the Schedule C submitted by each DBE and listed separately for each DBE participating on the above mentioned contract (attached additional pages if necessary):

DBE FIRM(S)	DESCRIPTION OF WORK FOR ENTIRE CONTRACT TERM— Please describe in DETAIL what TYPE of WORK the DBEs will be performing on this contract for its entire length:	TOTAL DOLLAR AMOUNT OF EACH DBE CONTRACT
		TOTAL \$\$ for ALL DBE:

The Prime Contractor designates the following person as their DBE Liaison Officer:

(Printed Name of DBE Liaison Officer) (Phone)

(Email)

DBE - SCHEDULE D

PRIME CONTRACTOR AFFIDAVIT THIS FORM MUST BE SIGNED AND NOTARIZED

DBE UTILIZATION PLAN / REQUISITION / JOB NO.:

I hereby acknowledge that I have been advised of the following:

Any misrepresentation regarding the status of a person or an entity in order to qualify for DBE status may result in conviction for a Class 2 felony, including a penalty for one and a half times the value of the contract. Material misrepresentation on any matter will also be grounds for terminating any contract which may be awarded, and for initiating action under federal or state laws concerning false statements.

To the best of my knowledge, information and belief, the facts and representations contained in the aforementioned attached Schedules are true and no material facts have been omitted.

The undersigned will enter into a formal agreement with all listed DBE firms for work as indicated by this Schedule D and accompanying Schedule C's, and will enter into such agreements within (7) seven calendar days after receipt of the contract executed by the Chicago Transit Authority or prior to any work being performed by the DBE subcontractor(s). In the event the Prime contractor cannot meet said seven (7) day schedule, it must provide a written explanation for the delay and an estimate date by which the written agreement will be completed.

If awarded a contract, I agree to promptly and directly provide the CTA on an ongoing basis, current, complete and accurate information regarding (1) work performed on the project; (2) payments; and (3) proposed changes, if any, to the foregoing arrangements.

Further, I shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. I shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by me to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the CTA deems appropriate.

(Name of Prime Contractor Firm)

(Printed Name of Owner, President, or Authorized Agent of Prime Contractor)

(Date)

(Signature of Owner, President, or Authorized Agent of Prime Contractor)

On this _____ day of _____, 20____, the above-signed Officer of

(Name of Affiant)

personally known to me as the person(s) described in the foregoing Affidavit, acknowledged that h/she executed the same in the capacity therein stated and for the purpose therein contained.

IN WITNESS OF, I hereunto set my hand and official seal.

OFFICIAL NOTARY SEAL:

Signature of Notary Public

My Commission Expires:

NAME OF PRIME BIDDER**BIDDERS LIST**

BID NO. _____

DATE: _____

JOB ORDER NO. _____

BID DUE DATE: _____

BUS. PHONE NO. _____

ADDRESS: _____

CITY: _____

STATE: _____

CONTACT PERSON: _____

As the prime bidder, listed below is the information about (Name of Firm) _____
that is requested by the Authority.

Also, included on the following list are all firms who responded to a solicitation by submitting a bid or quote as a subcontractor. Furthermore, included on the list are all firms who submitted a bid or quote on their own. Under gross receipt column list range using the following: **Under \$500,000, \$500,000-\$1,000,000, \$1,000,000-\$2,000,000, \$2,000,000-\$2,500,000, \$2,500,000-\$3,000,000, \$3,000,000-\$3,500,000, \$3,500,000-\$4,000,000, over \$4,000,000.**

FIRM NAME	FIRM ADDRESS	DBE OR NON-DBE	AGE OF FIRM	GROSS RECEIPT RANGE

GUIDANCE CONCERNING GOOD FAITH EFFORTS (49 CFR – 26.53)

In order to be responsive, a bidder must make good faith efforts to meet the DBE participation goal set forth in the contract. The bidder must document the good faith efforts it made in that regard. Thus, the Bid submitted to the Authority must be accompanied by written documentation prepared by the bidder evidencing all of its sufficient and reasonable good faith efforts toward fulfilling the goal. These efforts must be active steps, and ones, which could reasonably be expected to lead to sufficient DBE participation to meet the contract DBE participation goal. Mere *pro forma* efforts are not acceptable and will be rejected by the General Manager, DBE Program. Good Faith Efforts require that the bidder consider all qualified DBEs, who express an interest in performing work under the contract. This means that the bidder cannot reject a DBE as unqualified unless the bidder has sound reasons based on a thorough investigation of the DBE's capabilities. Further, the DBE's standing within its industry, membership in specific groups, organizations or associations and political or social affiliation (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Contractor's efforts to meet the contract DBE participation goal. The following list, which is not exclusive or exhaustive, sets forth the types of actions, which indicate good faith efforts on the part of a bidder to meet the DBE goal. The extent and type of actions required will vary depending on such things as industry practice; the time available for submitting a bid and the type of contract involved.

- Attendance at a pre-bid meeting, if any, scheduled by the Authority to inform DBEs of subcontracting opportunities under a given solicitation.
- Advertisement in general circulation media, trade association publications, and minority-focus media for at least twenty (20) days before bids are due. If 20 days are not available, publication for a shorter reasonable time is acceptable.
- Written notification to capable DBEs that their interest in the contract is solicited.
- Documentation of efforts to negotiate with DBEs for specific sub-contracts including at a minimum:
 - The names, addresses, and telephone numbers of DBEs that were contacted and the date(s) of contact.
 - A description of the information provided to DBEs regarding the plans and specifications for portions of the work to be performed.
 - A statement explaining why additional agreements with DBEs were not reached.
- For each DBE the bidder contacted but rejected as unqualified, the reason for the bidder's conclusion.
- Documentation of efforts made to assist the DBEs contacted that needed assistance in obtaining bonding or insurance required by the bidder or the Authority.
- Documentation of efforts to utilize the services of small business organizations, community and contractor groups to locate qualified DBEs.
- Documentation that the bidder has broken out contract work items into economically feasible units in fields where there are available DBE firms to perform the work.
- Evidence that adequate information was provided to interested DBEs about the plans, specifications and requirements of the contract, and that such information was communicated in a timely manner.
- Documentation of any efforts made to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services.

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PERFORMANCE/PAYMENT BOND

No bond required

INSURANCE

None required

PROPOSAL PAGE PREPARATION

The Bidder is to state on Proposal Page (P-1) the manufacturer's name, part number, unit price and total extended price for the two hundred sixty one (261), LED Run Number Sign Kits, including capital spares, test equipment, manuals and training that they propose to furnish.

Bidder shall indicate the name of company bidding, address, contact person, title, phone number, e-mail, and payment terms.

EXTENDED PRICE

Extended price shall include all applicable charges and represent the firm delivered price.

PRE-BID MEETING AND INSPECTION

It is the intent of this section that the following matters and all other major engineering considerations be settled to the satisfaction of the Bidder and the CTA before submission of bids so that CTA may determine exactly what the Bidder is offering. After award of a Contract, if any, the CTA recognizes no obligation to consider Contractor's proposal which should have been presented during the pre-bid period.

A Pre-Bid Meeting will be held on **Wednesday, January 28, 2015**. The meeting will convene at **10:00 A.M. (Central Standard Time, at the Chicago Transit Authority's Skokie Rail Maintenance Facility, located at 3701 West Oakton, Skokie, Illinois 60076.**

CTA shall make available to all Bidders, a 3200 Series Rail Car and its existing Run Number Sign Box for the purpose of performing an inspection of such equipment. This meeting shall be the only official general meeting for potential Bidders to view the equipment. The date, time and location for the **Pre-Bid Inspection** of said equipment is specified above. The **Pre-Bid Inspection** will provide an opportunity for prospective Bidders to additionally acquaint themselves with the 3200 Series Rail Car and the Run Number Sign Box being replaced. Any questions arising out of or not addressed in the General and Special Conditions and Detail Specification No. 8303-15 must be submitted in **writing to the Procurement Administrator, listed in the Title Page no later than Monday, February 9, 2015 by end of the business day.** All questions, CTA responses, minutes and comments will be incorporated via an Addendum, to all Bidders. This Addendum shall be sent to each prospective Bidder prior to the **Bid Due date.**

Each Bidder shall perform a thorough and complete inspection of the 3200 Series Rail Car and its existing Run Number sign box.

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PRE-BID MEETING AND INSPECTION (continued)

It shall be the Contractor's responsibility to provide any and all material as identified in Detail Specification No. 8303-15.

BASIS OF AWARD

If awarded, award shall be made to the responsive and responsible Bidder submitting the lowest total extended price for all two hundred sixty one (261), LED Run Number Sign Kits, including capital spares, drawings/diagrams, manuals/catalogs, test equipment, and training that they propose to furnish.

SINGLE BID RESPONSE

If only one (1) bid is received in response to the invitation for bids, cost or price analysis and evaluation and/or audit shall be performed of the single Bidder's cost breakdown in order to determine if pricing is fair and reasonable.

CONTRACTOR QUALIFICATIONS

Potential Bidders shall provide prior to bidding, or within five (5) calendar days after being so requested by the CTA, previous verifiable experience designing and supplying similar parts for transit/transportation companies. In addition, potential Bidders shall provide a list of the names, address, and contract information of at least three (3) previous customers as references.

OTHER PRE-BID MEETINGS

Bidders may request individual meetings to discuss the following:

1. Questions regarding or requests for clarification of Contract Documents.
2. Consideration of Bidder requests for variation of Contract Documents.
3. Consideration of the item which the Bidder proposes to offer as an 'equal' to those specified in the Contract Documents. The Bidder shall submit documentation to substantiate that the Bidder proposes to furnish something equal to that specified in the Contract Documents. In addition to descriptive literature, test data, and evidence of successful similar applications, this documentation shall include the Bidder's comprehensive comparative evaluation of that specified and that proposed and, upon request by the Engineer, samples of that specified and that proposed. The Engineer may require, and the Bidder shall provide, additional documentation requested by the Engineer to satisfy him that Bidder's assertions are factual.
4. Consideration of all items, procedures, systems and sub-systems that the Bidder proposes to furnish and utilize in the performance of the work required by the Contract Documents, wherein review by the CTA is required but no part number or other definitive ordering description is stated.
5. CTA evaluation of all required information as defined in Section 3 of the General Requirements, of the Technical Specification by the prospective Bidders.
6. Consideration of any other Contract matter which the prospective Bidder desires considered prior to bidding.

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OTHER PRE-BID MEETINGS (continued)

Bidders requesting these meetings shall do so to allow the CTA to conduct the meetings with all Bidders prior to fifteen (15) calendar days in advance of the scheduled bid opening date.

Subjects which the Bidders wish to discuss shall be submitted in writing on the "Bidder's Response Form" to the Procurement Administrator no later than three (3) calendar days prior to scheduled meeting date.

Minutes of "Pre-Bid Meetings" will be prepared by the CTA and distributed by the Procurement Administrator to all firms on the list of Bidders as well as funding agencies.

Minutes of the meetings constitute the official record and verbal statements are not binding on any party.

ALTERNATE RESPONSES

If prospective Bidders elect not to request a meeting, they are required to submit all their requests for approved equals, deviations, subcontractors, etc., covering the complete specification within fifteen (15) calendar days from date of the initial bid advertisement on the submittal form contained in the specification as "Bidder Response Form" to the Procurement Administrator.

The CTA will review the submittal information.

The CTA will then contact the individual Bidder that his submittals have been reviewed.

Any written documentation resulting from the review will be circulated to all firms appearing on the list of Bidders as well as funding agencies.

Bidders who have previously scheduled a pre-bid meeting shall not use the "Bidders Response Form" to pose additional questions for clarification or present requests for approved equals, deviations, approval of subcontractors, etc. in lieu of requesting another pre-bid meeting.

FINAL OPEN MEETING WITH ALL PROSPECTIVE BIDDERS

If circumstances warrant or a Bidder so requests and submits an agenda, a final open meeting may be held after issuance of the final specification addendum to review any major issues which have resulted from any addenda issued. All prospective Bidders are strongly encouraged to attend the final open meeting.

Minutes of the meeting, to include all questions and answers, will be circulated to all firms on the list of Bidders as well as funding agencies. Minutes of the meeting constitute the official record and verbal statements are not binding on any party.

DELIVERY

The first four (4) pre-production, LED Run Number Sign Kits shall be delivered no later than six (6) months from the Notice to Proceed. Each of these units shall be subjected to the pre-production testing required by the Technical Specifications, Section 3.11. The

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DELIVERY (continued)

Contractor shall not ship additional production of the LED Run Number Sign Kits until notified by the Procurement Administrator that these four (4) LED Run Number Sign Kits have successfully completed the pre-production tests.

The first of the remaining LED Run Number Sign Kits shall be delivered beginning two months after the successful completion of the pre-production test phase. The remaining LED Run Number Sign Kits shall be delivered at a rate of sixteen (16) units in the first month of delivery and eight (8) units per month for each subsequent month up to the total quantity of units to be delivered.

Manuals, drawings, CAD deliverables, replacement units, and training shall be delivered as specified in the respective sections of the Technical Specifications.

Delivery shall be made to Chicago Transit Authority's Skokie Rail Maintenance Facility, located at 3701 West Oakton, Skokie, Illinois 60076 to the attention of Eglind Myftiu or Julian Sandu (847-982-5139). **Deliveries are to be made weekdays except holidays between the hours of 7:00 AM and 3:00 PM.**

GENERAL OBLIGATIONS OF THE CONTRACTOR

The Contractor shall design each item of equipment or apparatus, strictly in accordance with the requirements of the Contract Documents.

The Contractor shall furnish all labor and materials, plant, tools, test equipment, and transportation required for the performance and completion of the work in the manner and within the time herein specified.

It is understood and agreed that the Contractor shall do all the work necessary to furnish the equipment and prepare the required detail drawings of the various parts. The Contractor shall assume responsibility for the proper working and fitting together of all parts and specialties, with necessary clearance for successful operation in accordance with the Contract Documents. Each end product shall function as intended.

The Contractor shall perform at no additional expense to the CTA all of the items set forth as its responsibility under this Contract and pay all fees, permits and royalties for patented appliances, products or processes incorporated in the work.

It shall be specifically understood that the omission of any drawing or schedule from these Contract Documents, which is required to make the equipment or apparatus furnished by Subcontractor or the Contractor fully complete and suitable for successful performance of the specified functions in accordance with the requirements of the Contract Documents, shall not relieve said Subcontractor or the Contractor from furnishing the required items or parts under the Contract Documents.

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GENERAL OBLIGATIONS OF THE CONTRACTOR (continued)

The Contractor shall advise the Engineer of the latest applicable revision of any drawing, chart, listing, model, part, style or similar identification referenced in the detail specification. The Engineer will decide whether the revision may apply to this Contract.

The Contractor shall be entirely responsible for the management of all interfaces within his design effort and between the Contractor and each Subcontractor in order to insure successful fit and function of all the components to be furnished on this contract.

REVIEW OF DRAWINGS AND DATA AND DESIGNS

The Contractor shall submit for the Engineer's review, all drawings and data required by the Contract Documents and such other drawings and data as may be requested by the Engineer which will enable the Engineer to determine to a high degree of engineering confidence that the Contractor will deliver equipment conforming to the Contract Documents suitable for the CTA operations, maintenance and safety practices, and operation in the CTA's operating environment. The CTA agrees that, to the best of its ability, non-complying and unsuitable features proposed by the Contractor will be identified at the design stage of development, and returned to the Contractor for corrections and/or adjustments.

Drawings and data submitted by the Contractor for review and concurrence by the Engineer which contain variation from the requirements of the Contract Documents shall be accompanied by an explanation detailing the justification for variation. Drawings and data by themselves will not be recognized by the Engineer as valid instruments for request and acceptance of variations from the requirements of the Contract Documents. Any drawings and data submitted by the Contractor without any explanation for a proposed variation shall not be used by the Contractor to implement the proposed variation.

The engineer shall return drawings and data to the Contractor within ten (10) working days after acknowledged receipt, with one of the following notations:

1. No comment
2. See comments
3. Request for additional information

In the event the drawing is returned with "no comment", the Contractor may proceed with the work on the basis of such drawings.

In the event the drawing is returned with the notation "see comments", or "request for additional information", the Contractor shall have fifteen (15) working days to make the required changes or modification or to supply the required additional information and return the drawing for review. The Contractor shall be granted no extension of the delivery schedule as a consequence of drawings being returned with comments or requesting additional information.

All technical data, test schedules, test results, progress schedules and reports, drawing lists, samples and other data submitted by the Contractor and requiring review by the Engineer will be handled in accordance with the above provisions.

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REVIEW OF DRAWINGS AND DATA AND DESIGNS (continued)

Review of Contractor's drawings hereunder shall not relieve the Contractor of any responsibility, including but not limited to, responsibility for accuracy of dimensions and details. The Contractor shall remain responsible for agreement and conformity of its drawings and data with the Contract Documents, and for conformity of the LED Run Number Sign Kits thereof with the Contract Documents.

Engineering Conferences shall be conducted for the purpose of reviewing designs, establishing baseline configurations and answering questions raised by the Contractor or Suppliers. Engineering Conferences shall be conducted at facilities suitable for the purpose (including Contractor and Supplier plants) as recommended by the Contractor and agreed to by the Engineer. For design reviews, the Contractor shall transmit data applicable for each review of the Engineer prior to the scheduled review.

First Article Inspections shall be conducted to confirm equipment compliance with specification and design requirements. A First Article Inspection shall consist of a physical configuration inspection as well as a functional demonstration unless otherwise agreed to by the Engineer.

First Article Inspections shall be scheduled by the Contractor.

The Contractor shall be responsible for documenting the final configuration of the items inspected and maintaining configuration control if any changes are made after the final inspection.

The Contractor shall furnish to the Engineer prior to each first article inspection an inspection and demonstration plan for each item for review by the Engineer. The Engineer shall make every effort to identify any omissions or additions needed and relay them to the Contractor for inclusion in the plan.

The Engineer will attend all First Article Inspections unless specifically waiving that right.

The results of each First Article Inspection shall be documented by the Contractor and all documents relating to the inspection shall be attached and a copy forwarded to the Engineer. If re-testing is required, the Contractor shall document the results and forward them to the Engineer.

AUTHORITY OF THE ENGINEER

The Engineer shall be the principal contact between CTA and the Contractor and will handle, on behalf of CTA, all matters within the scope of the Engineer's authority under the Contract Documents. Decisions and orders of the Engineer are subject to appeal under GENERAL CONDITIONS, paragraph 30 – **DISPUTES**.

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AUTHORITY OF THE ENGINEER (continued)

The Contractor shall proceed on the basis of any order or decision of the Engineer except for those for which the Contractor proposes to make a claim for change in cost or delivery. When the Contractor proposes to make such claim as a result of an order decision of the Engineer, a detailed Change Order proposal shall be prepared by the Contractor before proceeding.

The Engineer may reject any design or work proposed or supplied which the Engineer determines is not in conformance with Technical Specifications; is not suitable for CTA operation, maintenance or safety practices; or is not suitable for CTA environment.

The Engineer will determine which alternate products, proposed by the Contractor subsequent to the Pre-Bid Procedures, are qualified and may be used by the Contractor. The Engineer will interpret all questions concerning the meaning and intent of the Technical Specifications including Drawings. The Engineer may permit variations from the requirements of the Detail Specifications requested by the Contractor and which are in accordance with the intent of the Technical Specifications.

All orders and decisions of the Engineer will be confirmed promptly by written instruments. When such order or decisions rejects a design, material or work proposed or accomplished by the Contractor, such instrument of rejection shall include the reasons for rejection.

CTA LABOR, MATERIALS AND FACILITIES

CTA shall be under no obligation to provide its own labor or facilities in the performance or requirements which are obligations of the Contractor under terms of the Contract Documents, unless specifically so stated in the Contract Documents.

Notwithstanding the provisions of the paragraph above, the Contractor and CTA, may at the CTA's option, arrange for the performance of necessary modification, retrofit, or warranty work by the CTA at the expense of the Contractor. The CTA specifically reserves the right of first refusal on any modification, retrofit, or warranty work required on installations completed under this Contract.

When CTA labor or facilities are used in the performance of the obligations of the Contractor with mutual agreement or as permitted by terms of the Contract, the Contractor shall reimburse CTA for the cost of such work as follows:

1. For labor supplied by the CTA at the average hourly rate then in effect for the type work performed. If work is actually performed on overtime, CTA overtime wage rate will apply.
2. For an amount applied to its wage cost to cover the cost of fringe benefits.
3. For CTA supplied materials, specialties, equipment and accessories in the amount which is the sum of the purchase price plus the then current rate for handling charges plus delivery charges.
4. For shop overhead.
5. For an amount for General and Administrative Expenses.

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CTA LABOR, MATERIALS AND FACILITIES (continued)

The rate to be applied for fringe benefits, supervision and accounting, material handling charges, use of shop facilities and general and administrative expenses shall be those rates periodically developed and published on the basis of actual experience by the CTA's Financial Reporting and Analysis Section.

GUARANTEES

In addition to the warranties and remedies provided by law, the Contractor expressly warrants as follows:

1. The Contractor shall warrant and guarantee that the equipment supplied on this contract is free from defects in material and workmanship and properly designed in conformance with the Contract Documents to provide the services and functions therein described for a period of two (2) years after receipt of equipment.
2. In addition to the warranty and guarantee stated above, the Contractor shall further warrant and guarantee that the equipment provides reliable low maintenance operation. This warranty and guarantee shall apply for the time periods and conditions which follow:
 - a. In the event any line replaceable unit in a new system shall have a failure rate of ten percent (10%) or greater during any twelve (12) month period of the guarantee established in Paragraph 1 above or the reliability period established in this Paragraph 2, the Contractor agrees that the unit is unsuitable for the application and shall promptly replace such unit with units of improved reliability. The guarantee period for the improved units shall extend for a period of twelve (12) months from date of installation.
 - b. Line replaceable units include those items CTA regularly and commonly changes as part of its routine maintenance and troubleshooting procedures in the Rail Terminals. In the case that the line replaceable unit is electronic in nature even if it contains electro-mechanical devices, the extended warranty shall apply to the entire line replaceable unit, regardless of what components were replaced.
 - c. In the case that the line replaceable unit is mechanical or electro-mechanical in nature and includes moving, wearing components, and the modification required disassembly and repair or replacement of any of the moving, wearing components, the extended warranty shall apply to the entire unit. If no disassembly or repair or replacement of moving, wearing components was required either to correct the failure rate or to repair consequential damage, the extended warranty shall apply only to the components replaced.

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GUARANTEES (continued)

- d. In the case that the line replaceable unit is comprised of several assemblies or sub-assemblies, removal on non-defective assemblies or sub-assemblies to gain access to or to allow repair of the defective unit shall not constitute disassembly of moving, wearing components and shall not require warranty extension of the items removed.
3. Contractor's warranty and guarantee is subject to the condition that the CTA has reasonably complied with the requirement of any maintenance manual furnished by the Contractor covering the item in respect of which the claim is made provided the manual reflects standard industry practice and is geared to the CTA's normal maintenance practices. Should a part, component or item that is considered a consumable fail at the end of its normal service life, and such failure shall occur prior to the expiration of the guarantee periods above, such component or item shall be deemed to be outside the coverage of the guarantee.
4. During the period of the guarantee, the Engineer will promptly notify the Contractor in writing of each claim and the Contractor shall promptly remove and replace with new parts, or if agreed to by the Engineer, remove, repair and replace (or repair in place) all parts which fail under the terms of this Guarantee Section, including parts damages as a result of defect in, or malfunction of other car parts, all without any expense to CTA.

In the event the Contractor fails to comply promptly with the written order of the Engineer to repair, replace or correct damaged or defective work, materials, specialties, equipment and accessories, the Procurement Administrator shall, upon written notice to the Contractor, have authority to deduct the cost of such repair, replacement or correction from any compensation due or to become due the Contractor. In the event the Contractor has been paid, the Contractor agrees to reimburse CTA for the cost thereof.

5. The CTA and the Contractor agree that this Warranty Clause is fully understood by the parties, and that the price of the equipment and installation and the other mutual agreements of the parties set forth in this Agreement were arrived at in consideration of the provisions of this clause, specifically including the waiver, release and renunciation by the CTA set forth herein.

POST AWARD MEETING

As soon as possible, subsequent to the award of the contract, Contractor will meet with the Project Manager, the Manager, Technical Services Rail, and the Procurement Administrator for this requirement. The purpose of this meeting is to insure that all parties understand the project, the delivery schedules, the procedures and methods as stated in the contract documents. Also, any remaining questions by any of the parties will be answered and/or clarified at this time.

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PACKAGING

Material that is not properly packaged and does not have manufacturer's part number, or fails to be accompanied by a Bill of Lading may be returned to the Contractor at no cost to CTA. Unless otherwise approved in this Contract, shipments shall be made on a commercial Bill of Lading. An original and three copies of Bill of Lading or equivalent, receipted by the carrier, shall be furnished by Contractor to CTA at times of shipment.

GOVERNING LAW AND CHOICE OF FORUM

The Contractor hereby irrevocably submits to the original jurisdiction of those State or Federal courts located within the County of Cook, State of Illinois, with regard to any controversy arising out of, relating to, or in any way concerning the execution or performance of this Contract. The Contractor agrees that service of process on the Contractor may be made, at the option of the CTA, either by registered or certified mail addressed to the applicable office as provided for in this Contract, by registered or certified mail addressed to the office actually maintained by the Contractor, or by personal delivery on any officer, director, or managing or general agent of the Contractor. The Contract will be governed in accordance with the laws of the State of Illinois, without regard to choice of law principles.

CONFLICTS OF INTEREST

The Contractor covenants that it, its officers, directors and employees, and the officers, directors, and employees of such of its members if a joint venture, and subcontractors presently have no interest and must not acquire any interest, direct or indirect, in the Work to which this Contract pertains, which would conflict in any manner or degree with the performance of the Work hereunder. The Contractor further covenants that in the performance of this Contract, no person having any such interest must be employed by the Contractor.

The Contractor is prohibited from performing any work or services for the CTA under this contract that conflict with work or services that the Contractor performs under any other contract with the CTA. Such conflicts include, but are not limited to, design work for the Project under another contract, supervision or management for the Project under another contract, and review or audit work for the Project under another contract. The restrictions in this paragraph are applicable to all subcontractors. The Contractor has sole responsibility for compliance with this provision. Any violation of this provision is a material breach of the Contract, which is cause for termination.

PAYMENT TERMS

All payments shall be made as provided herein, less any amount to be withheld as provided.

The Contractor shall submit an invoice for each delivery of acceptable and approved material delivered. Invoices will be paid subsequent to formal acceptance of material by CTA. Original invoices shall be forwarded to CTA Accounts Payable Department, 567 West Lake, Chicago, Illinois 60661. Payments will be made in net thirty (30) calendar days after final acceptance of material or receipt of Contractor's invoice by CTA, or in accordance with the terms of Contractor's invoice, whichever is most favorable to the

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PAYMENT TERMS (continued)

CTA. Payment date(s) shall be calculated from receipt of invoice or final acceptance of goods, whichever is later.

Invoices must be presented only by the vendor to which a purchase order is awarded. Invoices received from a third party will not be honored unless prior written approval from purchasing agent has been obtained.

The Chicago Transit Authority shall make progress payments to the Contractor for LED Run Number Sign Kits in accordance with the performance milestones set forth below.

Acceptance of these LED Run Number Sign Kits shall not relieve the Contractor of its responsibility for the furnishing of capital spares, manuals and training or inclusion of said materials as a deliverable element of the LED Run Number Sign Kits procured in accordance with the requirements of the Contract.

The performance milestones and payment limits shall be as follows:

Milestone	Description	Payment
1	Acceptance of the LED Run Number Sign Kits.	Ninety-seven-percent (97%) of the unit price as listed on Bid Proposal Page (P-1) in accordance with this contract.
2	Acceptance of the capital spares, drawings/diagrams, manuals/catalogs, testing equipment, training and all other deliverables listed in CTA Specification No. 8303-15.	Three (3%) of remaining deliverables.

QUALITY

The standard quality for this specification is based on the detailed information supplied in the referenced specification. Competitive products will be compared to examples herein mentioned and will be considered as complying with this Specification if judged equal in performance, design, construction, sturdiness and overall workmanship.

WARRANTY

Contractor warrants that all goods and/or services furnished hereunder will be free from defects of material and workmanship; will conform to all applicable samples, specifications and/or drawings; and will be fit for the purpose of which purchased. Seller's warranties, together with its service warranties and guarantees, if any, shall run to the CTA. All goods and services will be subject to inspection by an authorized CTA representative within a reasonable time after receipt or completion. At CTA's option, the CTA may return any nonconforming or defective goods to Contractor or require correction or replacement at Contractor's risk and expense. Acceptance of goods and services by the CTA or payment shall not relieve Contractor of its responsibilities there under. In the event the Detail Specification has additional warranty provisions, then the most stringent warranty shall prevail.

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WARRANTY CLAIMS

In the event that a vendor fails to pay approved or partially approved warranty claims within sixty (60) days of submission, the CTA shall send the vendor written notice seeking immediate payment of the outstanding claims. If the vendor fails to pay the outstanding claims within five (5) days of vendor's receipt of the written notice, the Purchasing Department shall issue a notice to cure letter providing the vendor with ten (10) days to cure the default. If the vendor fails to cure the default, the CTA may, at its discretion, deduct the CTA's costs from 1) any unpaid contract funds, 2) any contract retainage amounts or 3) a maintenance or performance bond. If the deductions do not fully satisfy the outstanding claims, the CTA may seek additional remedies. All remedies shall be inclusive of applicable interest payments.

BID INQUIRIES

Refer all inquiries about this procurement to Luis Bejar, Senior Procurement Administrator, telephone (312) 681-2468. E-mail: lbejar@transitchicago.com

CHICAGO TRANSIT AUTHORITY

DETAIL SPECIFICATION FOR

3-DIGIT RUN NUMBER SIGN; LIGHT EMITTING DIODE (LED) TYPE DISPLAY, COMPLETE KIT, RAPID TRANSIT RAILCAR APPLICATION

CTA SPECIFICATION NO. 8303-15

1. SCOPE

- 1.1 This specification will describe the requirements for a contractor to furnish and deliver a new, complete, amber color, light emitting diode (LED) type, 3-digit run number sign, including sign boxes, control panels, manuals, and test equipment, to be used in the mid-life rehabilitation of Series 3200 rapid transit railcars in operation at the Chicago Transit Authority (CTA).

2. GENERAL INFORMATION

- 2.1 The latest version or revision of an applicable specification, drawing, standard, regulation, etc. at the time a given Invitation for Bid (IFB) is posted shall apply.
- 2.2 See the Contract Documents for the quantity of destination sign kits the CTA will require for a given contract. Each complete run number sign kit furnished shall be for one (1) CTA 3200 Series railcar.
- 2.3 See the Contract Documents for the location the required run number sign kits shall be shipped to for a given contract.
- 2.4 One (1) complete run number sign kit furnished shall be designated as a permanent training unit, and will be further detailed in a later section of this specification.

3. GENERAL REQUIREMENTS

- 3.1 All run number sign kits and equipment furnished shall be uniform. Any change or changes made to a kit shall be fully incorporated into all kits furnished, unless agreed to otherwise by the CTA Engineer.
- 3.2 All drawings, documents, reports, and other applicable items furnished to the CTA shall use customary U.S. units of measure. If drawings, tests, or other documents initially utilized a metric unit of measure, they shall also present the equivalent value of the appropriate U.S. unit of measure. Electrical and electronic symbols on all drawings shall conform to IEC or ANSI standards.

3. GENERAL REQUIREMENTS (Continued)

- 3.3 All documents, reports, and other items furnished to the CTA shall be prepared in clear, idiomatic, American English, and not be a literal translation to American English from another language.
- 3.4 All letters and reports shall be submitted on standard 8.5 inch by 11 inch paper, and all drawings shall be prepared to customary U.S. size standards.
- 3.5 The contractor shall furnish the CTA Engineer two (2) sets of full size paper prints of the latest revision of all drawings relating to the general layout, arrangement, wiring, and installation of the run number sign kit, as well as detail wiring and schematic diagrams of the run number sign kit. In addition, the contractor shall furnish drawings as AutoCAD electronic files on CD / DVD.
- 3.6 The contractor shall deliver to the CTA Engineer ten (10) printed sets of all parts catalogs and maintenance and instruction manuals. Manuals shall be printed on 8.5 inch by 11 inch size pages, punched with three (3) 5/16 inch diameter holes on 4.25 inch center-to-center spacing. Each page is to have a plastic reinforced edge. The manuals shall be assembled into heavy-duty binders suitable for extended shop use. The spine of each binder shall identify the manual by category and contents. Contractor shall insure all parts listed in a manual are fully identified, and that all operating information and parameters are furnished. The manuals shall also be delivered to the CTA Engineer on CD / DVD for use on a CTA personal computer (PC), which utilizes Microsoft® Office brand software. Manuals furnished shall be specific to the destination sign furnished to the CTA and not generic in nature. Manuals furnished shall follow the following guidelines, unless agreed upon in writing otherwise by the CTA Engineer.
- A) The maintenance concept shall address components to the lowest level identified in the parts catalog. The manuals shall contain a detailed analysis of each component, so that applicable personnel can effectively inspect, diagnose, service, maintain, adjust, repair, and replace equipment. Where interfaces occur, a cross reference shall be made to the appropriate location. The following topics shall be covered:
- 1) General – This shall include a basic description of the system and specifications on the major components in the system. Interfaces shall be identified and explained.
- 2) Theory of Operation – This shall include basic theory and the specifics of the system, and the relationships of assemblies, sub-assemblies, and components, with an explanation and analysis of their functions to the smallest replaceable component.

3. GENERAL REQUIREMENTS (Continued)

3) Operating Procedures – This shall include the location and functional descriptions of all controls, monitors, and indicators.

4) Diagnostics – This shall include a list in tabular format of symptoms, causes of malfunction or improper operation, and probable remedies to the smallest line replaceable component level or printed circuit board (PCB) level. Logic / flow charts may be used to assist in the diagnostics, but must reflect the most efficient and effective logic steps, and not simply the tracing of schematics.

5) Corrective Maintenance – This shall include step-by-step removal, replacement, and adjustment procedures to the smallest line replaceable component level. Detailed procedures shall be provided to adjust any destination sign unit that has been replaced. In addition, charts of families of consumables, including attaching parts, locations, log numbers or other information, and space for notes, shall be included. Consumables include lamps, filters, contact tips, fuses, and any other items as determined by the contractor and the CTA Engineer as being desirable for routine maintenance activity.

6) Preventive Maintenance – This shall include a list in tabular format of all inspection requirements, including cleaning, component replacement and repair schedule, required adjustments, limits, tolerances, optimum test point readings, calibration charts, and procedures in performing the preventive maintenance.

7) Shop Corrective Repair – This shall include detailed diagnostic procedures for assemblies and sub-assemblies, and step-by-step removal, overhaul, replacement, and adjustment procedures to the smallest replaceable component. Detailed test and adjustment procedures shall be provided for the complete destination sign, and for all of its assemblies and sub-assemblies.

3. GENERAL REQUIREMENTS (Continued)

B) The parts manual shall enumerate and describe every part to the lowest level of replaceable component, including active and passive electronic components. They shall include component name, symbol, function, rating, tolerance, manufacturer or supplier, name and address of manufacturer or supplier, manufacturer / supplier part number, commercial equivalents, and quantity per assembly or sub-assembly. The manual shall include exploded view diagrams illustrating and indexing every part. Each diagram shall be accompanied by a page listing every item indexed in the associated diagram and providing complete ordering data for each item. Diagrams and exploded views shall be provided to identify the appropriate location of parts within a sub-assembly, and that of the sub-assembly within the next larger assembly. The part manual(s) shall include an open column adjacent to the manufacturer's or supplier's part number column for the eventual inclusion of the given part's assigned CTA Item Number. In addition, the same part number information shall be provided on CD / DVD in Microsoft® Excel spreadsheet format. The contractor shall submit two (2) draft copies of each manual within one hundred eighty (180) calendar days after a written notice to proceed for review has been made by the CTA Engineer. A copy of each manual will be returned with comments by the CTA Engineer to the contractor for changes to be made. Final manuals shall be delivered as soon as they are available, but no later than three (3) months after delivery of the first production run number sign kit to the CTA. Contractor shall be responsible for providing updates and corrections to the manuals furnished for the duration of the warranty period at no additional cost to the CTA.

- 3.7 The contractor shall assign a main contact person for a given run number sign kit contract the contractor has with the CTA. The person designated by the contractor shall be knowledgeable on the run number sign kits being furnished, be readily available to answer questions by the CTA, and to assist in all aspects of the contract.
- 3.8 The contractor shall conduct maintenance training courses on CTA property to instruct CTA training and maintenance personnel in the proper techniques and procedures for the operation and maintenance of the run number sign and its bench test equipment. This instruction shall cover component part familiarization, operation, repair, maintenance, and troubleshooting procedures.

The contractor shall coordinate the training with the CTA Railcar Maintenance Training Department through the CTA Engineer. Run number sign training shall commence no later than ninety (90) calendar days after the first production unit is delivered, and bench test equipment training shall commence no later than sixty (60) days after the equipment is delivered and installed.

3. GENERAL REQUIREMENTS (Continued)

Training outlines shall be submitted to the CTA for review at least sixty (60) calendar days before training is to begin, to allow time for any revisions deemed necessary by the CTA. An actual complete run number sign kit shall be provided as a training aid for use at the CTA Railcar Maintenance Training Center. The contractor shall assist CTA Railcar Maintenance Training Center personnel in setting up the run number sign set-up and getting it operating to factory specifications.

Copies of all training material and any training aids shall become the property of CTA at the conclusion of the training courses. Electronic versions of the training material, compatible with Microsoft® Powerpoint or other common software, shall be furnished to the CTA and become property of the CTA. The contractor will provide appropriate software to the CTA if Microsoft® Brand software cannot be utilized to display and modify the training materials.

If the run number sign kit furnished under a given contract is similar to a run number sign set-up already in service at the CTA, the training courses shall also cover the differences in hardware, software, maintenance procedures, and techniques between the two types of run number sign set-ups.

It is expected that four (4) groups of eight (8) persons for a total of thirty-two (32) persons will receive run number sign training, and four (4) persons will receive bench test equipment training.

- 3.9 The contractor shall keep a log for each run number sign kit. The log shall contain the list of serial-numbered components and the serial numbers for that unit.
- 3.10 The contractor shall construct an actual size mock-up / mock-ups of a run number sign and perform a trial fit for both boxes on a 3200 Series car at the CTA to insure the mounting points and wiring interfaces are correct. Multiple trial fits may be required in order to get all the interfaces correct.
- 3.11 Pre-Production Testing
 - 3.11.1 The contractor shall ship four (4) complete pre-production run number sign kits to the CTA within six (6) months after a notice to proceed (NTP) has been issued by the CTA Engineer. These four (4) complete run number sign kits shall outfit two (2) married pairs of railcars (Or four (4) individual railcars). These pre-production run number sign kits will be installed by the CTA on existing CTA 3200 Series railcars and will be tested in regular railcar revenue service for six (6) months, including winter and summer seasons, in order to evaluate all aspects of the sign's design and operation, and before any

3. GENERAL REQUIREMENTS (Continued)

production run number sign kits are shipped to the CTA. The CTA Engineer reserves the right to shorten the six (6) month test period. Any deficiencies found in the design or operation of any pre-production run number sign kit furnished shall be corrected by the contractor before the shipping of any production run number sign kit commences. Any modification(s) made to a pre-production sign kit shall be fully incorporated into all run number sign kits furnished.

- 3.11.2 The pre-production run number sign kits furnished will be operated and maintained as any other run number sign units found in existing CTA railcars. Efforts will be made to ensure their daily operation.
- 3.11.3 All other work performed on the railcars during the testing period shall be subject to the provisions listed in the Special Conditions section: CTA Labor, Materials, and Facilities.
- 3.11.4 If an abnormal function or failure occurs during the test period, it shall be fully investigated by the contractor to determine if it resulted from a design, manufacturing, implementation, etc., deficiency. If, in the judgment of the CTA Engineer, a deficiency is identified, the affected pre-production run number sign kit(s) shall be revised accordingly by the contractor, and then returned to service for the remaining part of the test period.
- 3.11.5 If, in the judgment of the CTA Engineer, an extension to the test period for the run number signs is necessary, the test period may be extended up to an additional six (6) months.
- 3.11.6 When the pre-production run number sign kits have successfully completed their testing period, and any possible extensions thereof, the CTA Engineer shall authorize the contractor to commence shipment of the remaining run number sign kits on a given purchase order. Successful completion of the testing period shall not relieve the contractor of responsibilities for compliance with all requirements of the specification.
- 3.11.7 If any run number sign kit involved in the testing period is out of service awaiting engineering, personnel, parts, modifications, etc., for a period exceeding ten (10) calendar days total during the testing period, the testing period shall be extended by the total length of time the least available run number sign unit was out of service, in order to ensure adequate operational experience with all aspects of the railcar.

4. EQUIPMENT DESCRIPTION

4.1 General

- 4.1.1 Each railcar is presently equipped with one 3-digit run number sign box having curtain-type signage, incandescent back lighting and manual input. These existing run number sign boxes will be removed and replaced by the CTA in applicable 3200 Series railcars with the new run number sign kits purchased under this specification and a given purchase order.
- 4.1.2 The 3- digit run number sign shall use high-intensity amber LED technology. Sign characters shall be nominal four-inches (4") high and the LED matrix shall be no less than 16 high and 36 wide. Each digit of the run number sign shall be designed to display the numbers 0-9 and the letter 'X'.
- 4.1.3 The sign shall be mounted with a hinge and securement that shall keep the sign tight to the glass. Rubber bumpers shall be provided to cushion impacts on contact with the glass. The sign box shall have a front glass and be gasketed to exclude dust, dirt and water.
- 4.1.4 A red indicator light fully integrated into the box shall be arranged to be seen through the front windshield as on CTA's 3200 and 5000 Series cars. The light shall be mounted behind the front face of the box to preclude the red lens hitting the windshield if the bumpers have compressed.
- 4.1.4 The new run number sign boxes shall mount to the existing railcar's mounting points without any modifications to the railcar or to existing mounting brackets. The size and shape of the run number sign units shall be carefully considered in order to fit within the space available, and readily connect to the existing railcar's wiring harness.
- 4.1.5 The run number to be displayed on the run number sign shall be entered on a numerical key pad. The key pad shall use ruggedized and environmentally sealed components specifically designed to be used in rail car service. The key pad shall include the numbers 0-9, inclusive, as well as "Enter" and "Clear" keys to clear the run number display. Other keys may be added during the design review for the run number sign. The keypad shall also include a small display showing the run number as it is being keyed in.
- 4.1.6 The keypad shall be located within the run number sign box. The keypad shall be secured from unauthorized access and only be accessed using the CTA's standard MUDC key.
- 4.1.7 Alternative methods/arrangements to input the run number to be displayed may be proposed and will be reviewed by the Engineer.

4. EQUIPMENT DESCRIPTION (Continued)

- 4.1.8 The new run number signs shall turn ON whenever the master controller is active as on existing 3200 series cars or when an end of train signal is received. However, the new signs shall be designed to display ONLY when a run number has been entered into the key pad.
- 4.1.9 Displayed signage characters shall conform to ADA viewing requirements.
- 4.1.10 Any additional wiring or equipment/components that are needed to install the LED run number signs into the 3200 Series rail car shall be include within the run number sign kit.
- 4.1.11 The contractor will be responsible for reviewing the existing fuses and circuit breakers on the 3200 Series railcars to ensure that they are suitable to protect the new run number sign. If the circuit protection devices are not suitable to protect the new run number sign the contractor shall include replacement devices into the run number kit.
- 4.1.12 The proposed run number sign and all of its operational and design details, including diagnostics, programming, and the sign control, shall be reviewed by the CTA Engineer.
- 4.2 Bench Test Equipment
 - 4.2.1 Contractor shall furnish one (1) bench test equipment set with all standard cards/boards, meters, oscillators, power supplies, displays, and other equipment necessary for complete verification of operation, and for adjustment of the cards/boards and control modules in each run number sign.
 - 4.2.2 If existing CTA bench test equipment is fully compatible with the new equipment being furnished, then no additional bench test equipment is required. However, the contractor shall make any and all modifications required to existing bench test equipment in order for the existing bench test equipment to properly test the new equipment to be furnished under this specification and a given contract.
 - 4.2.3 Any modifications required to any of the bench test equipment during the warranty period, as a result of changes in railcar system equipment or software subsequent to the delivery of the equipment to the CTA, shall performed by the contractor at no additional cost to the CTA.
 - 4.2.4 Contractor shall furnish training, as well as maintenance and parts manuals, for the bench test equipment, at least equal to that provided for the run number sign units themselves.

4. EQUIPMENT DESCRIPTION (Continued)

- 4.2.5 The bench test equipment to be furnished, including instructions and procedures, shall be reviewed by the CTA Engineer.

5. ELECTRICAL – GENERAL

5.1 Low Voltage DC Operating Parameters

- 5.1.1 All low voltage, nominal 37.5 VDC, operated devices shall be capable of operating continuously and performing their functions over a continuous operating voltage range of 23 VDC to 42.5 VDC, as designated in Table 4 of IEEE Std. 1476-2000, except as otherwise specified, measured at the load.
- 5.1.2 All low voltage devices shall withstand input voltage transients in accordance with the requirements of IEEE Std. 1476-2000, and thereafter operate properly when the voltage is within the range of 23 VDC to 42.5 VDC.

5.2 High Voltage DC Operating Parameters

- 5.2.1 All high voltage, nominal 600 VDC, operated devices shall be capable of operating continuously and performing their function over a continuous operating voltage range of 400 VDC to 800 VDC measured at the main knife switch.
- 5.2.2 All high voltage devices shall be compliant with and tested to meet the transient overvoltage requirements of IEC-61287-1, Section 2.1.1.9.d, *Supply Line Overvoltages*. In addition, they shall withstand all railcar and wayside generated voltage excursions up to 1000 VDC for a minimum of five (5) seconds and up to 3000 VDC for up to five hundred (500) microseconds duration without sustaining any damage or interruption of operation.

5.3 Alternating Current (AC) Operating Parameters

- 5.3.1 All AC operated devices shall be capable of operating continuously and performing their functions over a range of $\pm 10\%$ from a nominal 230 VAC potential, and $\pm 10\%$ from a nominal 60 Hz frequency, when measured at the railcar's auxiliary inverter output.

5.4 Device Protection

- 5.4.1 Adequate protection shall be provided for all devices against all voltage and frequency variations to be found on the CTA system and/or developed by the railcar equipment. All contactor and relay coils shall be suppressed with an appropriate device reviewed by the CTA Engineer.

5. ELECTRICAL – GENERAL (Continued)

5.5 Bus Bars

5.5.1 There shall be no exposed bus bars other than ground or B-. Bus bars other than ground or B- shall be insulated in a manner reviewed by the CTA Engineer. Bus bars shall be of copper material.

5.6 Fuses and Fuse Holders

5.6.1 All fuses shall be reviewed by the CTA Engineer and shall be mounted in fuse holders, unless agreed to otherwise by the CTA Engineer.

5.6.2 Fuses shall be used to protect 600 VDC circuits, unless otherwise specified. 600 VDC fuses shall be of the indicator type, Littelfuse® Type IDSR or equivalent.

5.6.3 All fuse installations shall be reviewed by the CTA Engineer.

5.7 Relays and Contactors

5.7.1 All relays and contactors shall be reviewed by the CTA Engineer.

5.8 Diodes

5.8.1 The use of diodes for circuit isolation, signal division, or backfeed prevention shall be discouraged. Diodes having any contact with trainline or railcar carbody wiring outside an electronic system shall have PIV of not less than three (3) times the applicable circuit voltage, or one thousand (1000) volts, whichever is greater, and shall have a current rating at least 200% larger than required. Diodes in these situations shall be reviewed by the CTA Engineer.

5.9 Opto-Couplers

5.9.1 Opto-couplers may be used to isolate sensitive electronic circuits from trainline and railcar carbody wiring.

5.10 Electronic Circuit Sensitivity

5.10.1 Electronic circuits that utilize trainline or railcar carbody wiring signals shall be particularly designed to be immune to leakages, spikes, surges, and other variations that can regularly occur, and shall not recognize any spurious voltage resulting from leakage or induction as a valid signal. The steps taken to meet these requirements shall be reviewed by the CTA Engineer.

5. ELECTRICAL – GENERAL (Continued)

5.11 Electromagnetic Interference

- 5.11.1 The contractor shall ensure that electrical and electronic systems furnished under this specification shall properly operate in their operational environments, without either suffering, or causing harm because of, unintentional electromagnetic interference, either radiated and/or conducted.

6. ELECTRICAL – RAILCAR WIRING

6.1 Wire Size

- 6.1.1 Railcar carbody wire shall not be smaller than size 16 AWG. Special care shall be taken to provide physical protection for all wire to prevent damage while pulling, or damage from vibration, especially at terminals. Wiring for interconnection of various pieces of special apparatus may be of different sizes, stranding, and shielding as recommended by the various manufacturers, and reviewed by the CTA Engineer.

- 6.1.2 All wiring smaller than size 16 AWG shall require review by the CTA Engineer. Electronic card wiring shall be no smaller than size 26 AWG and electronic panel wiring shall be no smaller than size 22 AWG.

6.2 Wire Harnesses and Layout

- 6.2.1 Insofar as practical, all wiring shall be fabricated on the bench into convenient units, and then installed as prefabricated groupings in standardized locations.

- 6.2.2 Harnesses secured with Nylon material wire/cable ties shall have the Nylon material wire/cable ties trimmed and located to eliminate hazard to personnel from sharp edges. Nylon material wire/cable ties shall be applied with the proper tool to prevent damage to wire insulation the tie may be in contact with.

- 6.2.3 No wire harness shall lie on the bottom of any enclosure.

6.3 Wire Segregation

- 6.3.1 Wires carrying different types of current, or having different potentials, shall not be carried in the same conduit, or in unsegregated ducts, or be cabled together.

6. ELECTRICAL – RAILCAR WIRING (Continued)

6.4 Wire Markers

6.4.1 Each wire shall be plainly and permanently marked within one (1) inch of each of its terminations with a wire tag. All terminals of all terminal boards and all studs shall be clearly and permanently marked with a marker showing the designation of the wires to be attached to each terminal. Each terminal board shall have a unique identifying number.

6.4.2 Wire markers shall be white in color having black color numbering/lettering on them for contrast. Wire markers and their markings, and the marking of terminal boards, shall be reviewed by the CTA Engineer.

6.4.3 All wires on any terminal shall have the same designation. When more than one (1) wire carries the same designation, e.g., "B-", each wire shall also carry a unique numeric identifier. Each wire shall have only one (1) designation between circuit-interrupting or power-consuming devices.

6.5 Wire Physical Protection

6.5.1 Where wires enter a conduit or duct, or pass through any partition, rubber or phenolic bushings, or plastic or metal bell mouths, shall be provided to prevent abrasion of the wire's insulation. Where wires pass through partitions or any metal plate, the protection shall prevent wire insulation chafing on either side of the partition or plate. All conduit ends shall be reamed before installation to remove sharp edges and burrs. Open or loom wiring must have protection wherever it could come in contact with structure edges to prevent chafing or cutting. Wire protection items are to be installed before any wiring is installed.

6.5.2 Where watertight cable glands are used, they shall be equipped with seal washers between the gland body and the panel through which they pass. The use of extra sealer is not permitted. Cable glands shall be sized to clear the cable terminations, or they shall be mounted on gasketed mounting plates to permit removal without re-terminating the cables.

6.6 Plugs and Connectors

6.6.1 All plugs and connectors, unless otherwise agreed to by CTA Engineer, shall be multi-pin, cylindrical, with positive lock bayonet coupling and visual indication of full mating, to improve ease of removal and reduce wiring problems.

6. ELECTRICAL – RAILCAR WIRING (Continued)

- 6.6.2 The connectors shall be, or be equivalent to, CIR Series connectors manufactured by ITT Veam Corporation. Connectors shall be reviewed by the CTA Engineer.
- 6.6.3 Plugs and connectors for ethernet/IP circuits or network signals shall be metal, heavy duty, D coded M12 or Harting type suitable for applications on a vibrating object. Standard commercial plastic connectors and plugs shall not be permitted.
- 6.6.4 All plugs and connectors shall be reviewed by the CTA Engineer.
- 6.7 Portable Test Unit (PTU) Plugs and Connectors
- 6.7.1 The receptacles applied to each micro-processor controlled system for PTU access to the controls, and the plugs applied to the cables of the PTUs, shall be rugged, heavy-duty, and suitable for application on a railcar. All PTU plugs and connectors shall be reviewed by the CTA Engineer.
- 6.8 Printed Circuit Boards (PCBs)
- 6.8.1 All printed circuits boards (PCBs) are to be made of FR-4 circuit board material. Applicable PCB locations shall have plated-through holes for the leads of through-hole components that are mounted on the PCB. All PCBs shall have a solder mask, and identification of components on the PCB shall be inked in white, or a color in high contrast relative to the PCB's solder mask color.
- 6.8.2 Through-hole resistors on a PCB having a power rating greater than 1 Watt shall have the resistor body raised up from the PCB when its leads are being soldered to the PCB.
- 6.8.3 All PCBs used shall be of the "plug-in" type, except where agreed to otherwise by the CTA Engineer.
- 6.8.4 Plug-in PCBs shall be designed with keyed plugs and sockets to prevent incorrect insertion of a PCB into a given header, rack, or receiving unit. Exposed pin type plugs shall not be permitted. Each PCB shall be labeled and its PCB header or rack identically labeled to identify which location each PCB correctly belongs. In addition, each PCB shall have a permanently affixed serial number and bar code.

6. ELECTRICAL – RAILCAR WIRING (Continued)

- 6.8.5 Appropriate electrical contact areas on a given PCB, and for its header or rack receiving the PCB, shall be gold-plated for minimum contact resistance, minimum surface corrosion, and long-term contact reliability.
- 6.8.6 All PCB soldering operations shall only have one of the following appropriate solder types used, using a rosin core flux, for the soldering of applicable components to the PCB: "Sn 60 / Pb 40" ; "Sn 63 / Pb 37" ; "Sn 62 / Pb 36 / Ag 2".
- 6.8.7 After a given PCB has been completely "stuffed" with components, the applicable surface areas of each side of the PCB shall receive a coat of conformal coating after all soldering fluxes have been removed. The conformal coating used shall be able to be readily removed from the PCB, if required, using an electrical contact cleaner or solder flux remover solvent, and then be able to be "touched-up" with a spray-on conformal coating after a given PCB repair or given test has been completed.
- 6.8.8 Applicable electrical components on a PCB shall be properly soldered and/or mounted in order to prevent component failure due to vibration.
- 6.8.9 A sample of each completely stuffed, ready for mounting/insertion, PCB that will be found in a complete destination sign set-up shall be submitted to the CTA Engineer for review.
- 6.9 Microprocessors – Application Features
- 6.9.1 Applicable microprocessors shall be reprogrammable from the portable test units (PTUs) without removing devices or PCBs, unless specifically agreed to by the CTA Engineer.
- 6.9.2 The PTU software shall be a stand-alone application that shall not be dependent on the software in the unit being monitored. When software revisions are made to the various systems, no changes shall be required to the PTU software to function properly.
- 6.9.3 The CPU and associated logic packages shall be housed in an EMI shielding metal enclosure, unless otherwise agreed to by the CTA Engineer. Access shall be gained by quick-acting fasteners which do not require special tools to operate. It shall not be necessary to remove EPROMs from the PCB in order to reprogram them, unless specifically agreed to by the CTA Engineer.

6. ELECTRICAL – RAILCAR WIRING (Continued)

- 6.9.4 All signals applied to a given microprocessor, and all outputs from the input-output port, shall be through isolation buffers located external to the microprocessor. The buffers shall:
- a) Protect and isolate the microprocessor from damage due to over voltage, under voltage, voltage transients, shorts, and opens.
 - b) Perform necessary voltage translations.
 - c) Remove noise and undesired signals.
 - d) Limit, process, discriminate, and format those signals, such as speed sensor input, display drivers, and code rate input, which, due to their nature, might cause an excessive amount of throughput for a given microprocessor.
- 6.9.5 Batteries, if used, shall not be soldered to PCBs, but mounted in holders reviewed by the CTA Engineer.
- 6.9.6 Only one (1) battery setup shall be permitted per system unless explicitly agreed to by the CTA Engineer. Systems shall be designed to share a battery setup to prevent battery proliferation.
- 6.9.7 Battery type used shall be readily available in the USA marketplace.
- 6.9.8 Non-volatile memory components shall not require a battery or other device requiring periodic replacement.
- 6.10 Microprocessors – Software
- 6.10.1 The microprocessor software shall be structured to clearly identify and provide all of the following functions.
- a) Initialization - Routines that are required to restart the microprocessor and prepare the hardware for correct operation.
 - b) Discrete Logic Functions - A separate and distinct routine for each and every major logic function, or signal processing, that the microprocessor system is to perform.
 - c) Executive - Routines which link the subroutines into a system.

6. ELECTRICAL – RAILCAR WIRING (Continued)

- d) Self-Check and Monitor - Routines within the normal flow and operation of the microprocessor system which continually perform a self-check, provide an external indication of the operational status, and provide an indication of data values.
- e) Diagnostics - Routines which will not disrupt the normal program flow or timing, but provide diagnostic information of system operation.

6.11 Microprocessors – Software Support

- 6.11.1 All non-commercial, project specific software shall be placed in escrow and shall become the property of the CTA should the original equipment manufacturer (OEM), or the OEM's successor(s), cease to support it. The escrow period shall be for a minimum of twenty (20) years after the date of issuance of a given purchase order by the CTA.

7. MATERIALS & WORKMANSHIP

7.1 General

- 7.1.1 All material entering into the manufacturing of the equipment shall be of first-class quality. All workmanship shall be high grade and shall conform to the best manufacturing practices in all respects.
- 7.1.2 All materials shall conform to applicable ANSI, ASTM, Federal Specifications, or other standards as agreed to by the CTA Engineer. Cases of conflict between specifications shall be brought to the attention of the CTA Engineer for review.
- 7.1.3 All tests shall be conducted using U.S. customary units of measure, or shall be converted and reported in U.S. customary units of measure.
- 7.1.4 All materials intended for use in CTA railcars shall be appropriately marked and/or stored to be readily identified, and shall be adequately protected during handling and storage during all stages of the manufacturing process.
- 7.1.5 All metal fastening components, such as, but not necessarily limited to, screws, bolts, nuts, and washers, shall conform to applicable ANSI standards and, unless made of stainless steel material, shall be appropriately plated or e-coated to resist corrosion and rust.

7. MATERIALS & WORKMANSHIP (Continued)

- a) All hardware of 0.25 inch diameter or larger shall have national coarse threads. Exceptions may be permitted, but requires the review of the CTA Engineer.
 - b) Bolts used with Nylon insert lock nuts shall be sized to extend at least two (2) full threads through the locking ring, but shall not be longer than the next standard length.
 - c) All bolts and cap screws shall have their head marked to indicate grade and material in accordance with SAE J429f.
 - d) All nuts shall be marked to indicate their grade, in accordance with SAE J995b or Industrial Fasteners Institute IFI-100 Paragraph 3, for prevailing torque type steel lock nuts.
 - e) All hardware, such as bolts, cap screws, washers, nuts, etc., when used together at a given fastening point, shall be of the same grade
- 7.1.6 Components, plates, shields, or other parts which may need to be removed in order to perform maintenance or repair work shall not be secured with any self-tapping or sheet metal type fasteners, including speed nuts or J-nuts. The use of push-on "Tinnerman" type nuts is not permitted without review by the CTA Engineer.
- 7.1.7 Components, plates, shields, or other parts which may need to be removed in order to perform maintenance or repair work shall be interchangeable with another of the same identical item.
- 7.1.8 All bolts, nuts, cap screws, and machine screws shall be locked to prevent any loosening in service. Lock washers shall not bear against flat washers, but shall bear against non-rotating surfaces. The use of Loctite® or a similar type chemical compound shall not be permitted without review by the CTA Engineer.
- 7.1.9 Screws shall be driven in a manner to preclude damage to the screw's drive recess. No screws with damaged, burred, or rounded out drive recesses shall be allowed.
- 7.1.10 Manufacturer's trademarks shall not be visible.
- 7.1.11 Bolt holes shall be accurately located and aligned. When necessary during assembly, holes may be reamed round to specified size in position.

7. MATERIALS & WORKMANSHIP (Continued)

Rounding out holes or elongating holes during assembly to affect alignment shall not be allowed.

7.1.12 All applicable stainless steel material components and parts shall be attached with stainless steel hardware.

7.1.13 All parts shall be free from sharp edges and burrs that might potentially injure a person or damage a person's clothing.

7.2 Aluminum

7.2.1 All aluminum material used, if not hard anodized, shall be properly prepared, prior to being top-coated with acrylic enamel paint, or powder coated, on all of its applicable surfaces. Color to be used will be per the direction of the CTA Engineer.

7.2.2 Wherever aluminum material contacts any other material, it shall be isolated, and the joint shall be sealed with suitable material(s) in order to prevent galvanic coupling.

7.2.3 Aluminum material used that is anodized shall be hard anodized.

7.2.4 Aluminum material shall be used only where specified, or where explicitly accepted by the CTA Engineer.

7.3 Wire and Cable

7.3.1 Wire and cable sizes and stranding shall conform to ASTM specifications.

7.3.2 All wire and cable electrical conductors (and shielding, if applicable) shall be of tin plated, soft, annealed copper and shall have the properties and characteristics specified in ASTM B-3 or B-33, latest revision.

7.3.3 All wire and cable shall be of stranded conductor design. Use of wire or cable having a non-stranded (solid) conductor design shall be reviewed by the CTA Engineer.

7.4 Wire and Cable Insulation

7.4.1 For wire and cable being size 8 AWG and smaller, its insulation shall be ETFE fluoropolymer per ASTM B-3159, latest revision, or irradiated cross-linked polyolefin (XLPO). For wire and cable being larger than size 8 AWG, its insulation shall be irradiated cross-linked polyolefin (XLPO).

7. MATERIALS & WORKMANSHP (Continued)

- 7.4.2 For wire and cable used in nominal 37.5 VDC or 120/240 VAC circuits, the insulation on the wire and cable shall have a rating of at least 600 VDC. For wire and cable used in nominal 600 VDC circuits, the insulation on the wire and cable shall have a rating of at least 2000 VDC.
- 7.4.3 The insulation on wire and cable used shall have a temperature rating of at least 125° C.
- 7.4.4 In areas where wires and cables will be subjected to relatively high temperatures, the insulation on the wire and cable shall be silicone rubber, glass braid covered, or filled TFE, with a temperature rating of at least 260° C.
- 7.5 Wire and Cable Insulation Colors
 - 7.5.1 The color of the insulation on a given wire or cable shall be homogenous throughout the insulation and not just on the insulation's outer surface.
 - 7.5.2 The insulation on a given wire or cable shall be white color for relatively low voltage (37.5 VDC) circuits, black or dark gray color for relatively high voltage (600 VDC) circuits, and blue color for any wire or cable conducting an alternating current, unless agreed to otherwise by the CTA Engineer.
- 7.6 Carbody Multi-Conductor Cable
 - 7.6.1 All carbody multi-conductor cable shall be reviewed by the CTA Engineer.
 - 7.6.2 Wire sizes and shielding shall be as required by the subsystem being interconnected. Conductor insulation and shielding shall be selected for flexibility, durability, and suitability for the application.
 - 7.6.3 The outer jacket of a given carbody multi-conductor cable shall be neoprene or XLPO material.
 - 7.6.4 Color coding shall be per IPCEA No. S-19-81, NEMA WC-3, Section 5.6.2.1, Method 1, Table 2, including second tracer color for a cable having over twenty-one (21) individual conductors.
- 7.7 Wiring – General
 - 7.7.1 All wiring work shall be performed by, or under the direction of, experienced personnel. Appropriate tools for skinning/stripping insulation, cutting, tinning, soldering, and attaching mechanical or compression type terminals to conductors, shall be utilized.

7. MATERIALS & WORKMANSHIP (Continued)

- 7.7.2 Care shall be utilized whenever insulation is being stripped from a given wire so as to avoid cutting or nicking of the copper conductor in a given wire, whether the wire has stranded conductors or a solid conductor.
- 7.7.3 Wire in a duct and conduit shall be free of any kinks and insulation abrasions.
- 7.7.4 Any pulling compound used in a duct or conduit wire or cable installation, shall be non-conductive, non-odorous, not attract vermin, or attack the insulation of the wire or cable.
- 7.7.5 Any wire or cable which may be subjected to motion relative to its two (2) end connection points shall be appropriately supported, so as to eliminate any type of breakage or damage to the wire or cable, or its end connection points.
- 7.7.6 For a given wire or cable, sufficient slack shall be left to provide strain relief any time a wire or cable is pulled through a compartment.
- 7.7.7 A service loop sufficient for two re-terminations shall be provided for all wires of size 8 AWG or smaller terminating on a terminal board.
- 7.7.8 Wire or cable harnesses secured with Nylon material wire/cable ties shall have the wire/cable ties appropriately trimmed and located to eliminate any hazard to personnel from any remaining sharp edges. Nylon material wire/cable ties shall be installed with the proper tool to prevent damage to a given wire's outer insulation. Unless otherwise specified, Nylon material wire/cable ties used shall be black in color. Black color Nylon material wire/cable ties generally are more resistant to UV and ozone than natural color (Ivory) Nylon material wire/cable ties. The length and width of a given Nylon material wire/cable tie used shall be appropriate for the specific application.
- 7.7.9 No wire or cable harness shall lie on the bottom of any enclosure.
- 7.8 Solder and Soldering Process
 - 7.8.1 As for PCBs mentioned in Section 6.8.6 above, the solder types that can be used for making solder joints shall be: "Sn 60 / Pb 40"; "Sn 63 / Pb 37"; "Sn 62 / Pb 36 / Ag 2". The solder used shall have high-purity components and shall be from a recognized brand name manufacturer, such as, but not necessarily limited to, Kester®. Solder flux to be used for soldering operations shall be a rosin type.

7. MATERIALS & WORKMANSHP (Continued)

- 7.8.2 Solder used shall be at least equal to that designated as SAE No. 1, Class B.
- 7.8.3 A non-corrosive, non-conductive, rosin type flux shall be applied to a given solder joint area immediately before the soldering process commences. The rosin flux can be applied independently, or, if appropriate for the soldering task, can be in the center core section of a given solder wire. Any flux remaining after a given soldering operation has been completed shall be removed with an appropriate flux removal solvent so no residues remain at the solder joint area afterwards.
- 7.8.4 Ends of conductors to be soldered shall be thoroughly cleaned and tinned. Care shall be exercised to prevent the burning or "flow-back" of a given wire's outer insulation, and excessive flowing of the solder along the conductor.
- 7.8.5 Only enough solder shall be used to make a proper solder joint. Excessive solder at a solder joint shall be avoided. When applicable, a good mechanical joint of the applicable parts shall be made first prior to making the solder joint. All of the applicable parts that will be connected when making a solder joint shall be uniformly heated to the applicable temperature before solder is applied and flows to make the joint.
- 7.8.6 Each completed solder joint shall be clean and relatively bright in silver color. "Dark", "grainy", or "cold" solder joints are not allowed and shall be re-done.
- 7.9 Electrically Insulating Tape
- 7.9.1 When required, any electrically insulating tape used shall be of polyvinyl chloride (PVC) material having unrestricted qualification under Specification MIL-1-7798A. The tape shall have 0.007 inch nominal overall thickness. Color of the tape shall be as required. The electrically insulating tape shall be 3M® Scotch® Brand "Super 33+" vinyl electrical tape, or a technical equivalent in performance and quality reviewed by the CTA Engineer.
- 7.10 Electrical Terminals – Crimp & Solder Types
- 7.10.1 Crimp and solder type electrical terminals used shall be of the "ring" type, with a hole for a given screw/bolt size and an opening for a given size AWG wire as required for the application. The electrical terminals can be of tinned copper material or tinned brass material.
- 7.10.2 Electrical terminals for AWG size 8 wire and smaller shall be equal to Amp Brand PIDG type, and for larger than AWG size 8 wire, shall be made of

7. MATERIALS & WORKMANSHIP (Continued)

seamless, tubular, copper, equal to Amp Brand, Ampower II type, unless otherwise agreed to by the CTA Engineer.

- 7.10.3 After a given wire and electrical terminal have been joined, one shall not see any of the wire's inner conductors at the area where the wire's outer insulation meets the body end of electrical terminal. Also, the area where the wire's outer insulation meets the body end of the electrical terminal shall have an appropriate length of heat shrink tubing placed over it. The heat shrink tubing shall be of the appropriate diameter before shrinking, have a 2:1 shrink ratio, and be black in color unless specified otherwise by the CTA Engineer.

7.11 Paint and Painting/Finishing

- 7.11.1 All applicable surface areas of a component or item to be painted/finished shall be properly and thoroughly prepared, including the removal of any surface debris and welding spatter. After being prepared for painting/finishing, a minimum of one (1) coat of base primer and then a minimum of one (1) coat of acrylic enamel paint, such as DuPont™ Centari® Brand, or equivalent, shall be applied. Powder coating may be used in lieu of using acrylic enamel paint. All painting/finishing work on a given component or item shall comply with the appropriate painting/finishing manufacturer's product and process guidelines and recommendations, and shall be performed in an area free from dirt, dust, and airborne contaminants. Any painting/finishing work performed on a given component's or item's surface which shows the presence of dirt, dust, runs, or "orange peel" after process completion shall not be acceptable, and shall be redone at the contractor's expense.

8. CAPITAL SPARES & OTHER DELIVERABLES

8.1 Capital Spares

- 8.1.1 The contractor shall furnish capital spares of specific run number sign unit components/parts in the quantities presented below. These capital spares shall be shipped to the CTA as directed by the CTA Engineer. If a modification or modifications are made to any unit installed on a railcar before or after delivery to the CTA during the warranty period, then the modification or modifications shall also be incorporated into the capital spares at no cost to the CTA.

a) Any relays and contactors: Ten (10) of each type.

b) Power supply: Ten (10).

8. CAPITAL SPARES & OTHER DELIVERABLES (Continued)

c) Plug-in circuit cards (PCBs): Ten (10) of each type.

d) Non plug-in circuit cards (PCBs): Ten (10) of each type.

If designs and arrangements of components/parts other than those listed above are used, the CTA Engineer will adjust the description and quantity to correspond to the description of the component/parts actually being furnished by the contractor as capital spares.

8.1.2 The contractor shall prepare a detailed components/parts list on the specific run number sign kit they intend to furnish for review by the CTA Engineer. The list shall include, but not necessarily be limited to, manufacturer/vendor component/part numbers and complete component/part descriptions, so that the CTA can assign an appropriate CTA Item Number to a given component/part of the run number sign kit.

8.1.3 The capital spare units listed in Section 8.1.1 shall be shipped to the CTA no later than ninety (90) days after shipment of the first production destination sign kit to the CTA by the contractor.

8.2 Other Deliverables

8.2.1 Bench Test Equipment - The specified bench test equipment shall be shipped to the CTA no later than one hundred eighty (180) days after the delivery of the first production run number sign kit to CTA by the contractor.

9. SHIPPING REQUIREMENTS

9.1 Each shipment of contractor product to the CTA shall include a complete packing list. Each packing list furnished shall include, but not necessarily be limited to, the following items.

- a) Description of Product(s)
- b) Quantity
- c) CTA Purchase Order Number

9.2 Contractor product being shipped to the CTA shall be appropriately packaged, and when applicable, placed atop a pallet or pallets made of wood or polymer material. The CTA can accept shipment of contractor product during the hours of 7:00 AM until 3:00 PM, CST, Monday through Friday, not including Saturdays, Sundays, or Holidays, unless mutually agreed to in advance by the contractor and the CTA Engineer.

10. PRE-BID MEETING

- 10.1 See the Special Conditions section of the Contract Documents for possible information on a CTA pre-bid meeting for a given contract. The CTA Procurement Administrator, whose name and contact information is listed in the Contract Documents, shall administer the pre-bid meeting and determine its date, time, and location.

11. WARRANTY & PRODUCT SUPPORT REQUIREMENTS

- 11.1 See the Special Conditions section of the Contract Documents for product warranty and product support requirements to be furnished by the contractor or the contractor's authorized agent.

12. ADDITIONAL INFORMATION FOR POTENTIAL CONTRACTORS

- 12.1 Not every section, or a partial section within a section, of this specification may be specifically applicable to the product required, namely,

3-DIGIT RUN NUMBER SIGN; LIGHT EMITTING DIODE (LED) TYPE
DISPLAY,
COMPLETE KIT, RAPID TRANSIT RAILCAR APPLICATION

- 12.2 Should a potential contractor fail to provide all the necessary information on a given subject matter for a given procurement in the potential contractor's bid response package, the potential contractor shall respond with the necessary information within five (5) business days if so requested by the CTA.
- 12.3 Potential contractors requiring any additional information shall contact the CTA Procurement Administrator whose name is stated in the Contract Documents. Potential contractors requiring additional information from a person or persons potentially listed in the Special Conditions section of the Contract Documents must route their request through the Procurement Administrator. Potential contractors who contact any CTA personnel other than the Procurement Administrator during the open bidding period will be considered to be in violation of the provisions set forth in the Contract Documents.

EM/ em – Initial Specification – 05/20/14

EM/ em – Revised for bid contract – 01/08/15

BID PROPOSAL
REQUISITION NUMBER C15RT101631000
SPECIFICATION NO.: CTA 8303-15

By execution of this Proposal the undersigned offers, in accordance with the terms of the Contract Documents of which this proposal is a part, to furnish and deliver the following

FURNISH AND DELIVER TWO HUNDRED SIXTY ONE (261), LED RUN NUMBER SIGN KITS FOR 3200 SERIES RAIL CARS, F.O.B. DESTINATION.

FOB Destination, as described in these General and Special Conditions and Detail Specification No. CTA 8303-15, at the Firm unit price set forth on the Bid Proposal Sheet as stated below.

LED Run Number Sign Kits for 3200 Series Rail Cars

<u>Qty.</u>	<u>Manufacturer</u>	<u>Part No.</u>	<u>Unit Price</u>	<u>Extended Price</u>
261	_____	_____	_____ x 261	_____

*Unit price includes the cost of capital spares, drawings/diagrams, manuals/catalogs, testing equipment and training.

The following are a list of Capital Spares required:

- A.) Relays: Ten (10).
- B.) Contactors: Ten (10).
- C.) Power Supply: Ten (10).
- D.) Plug-In Circuit Cards (PCBs): Ten (10).
- E.) Non Plug-In Circuit Cards (PCBs): Ten (10).

NAME OF COMPANY BIDDING: _____
STREET ADDRESS: _____
CITY: _____ STATE: _____ ZIP CODE: _____
PERSON TO CONTACT: _____ TITLE: _____
PHONE NUMBER _____ FAX NUMBER _____
E-MAIL ADDRESS: _____

TERMS: DISCOUNT: _____% _____ DAYS, NET _____ DAYS

BIDDER RESPONSE FORM

For approved equals, deviations, and subcontractors provide the following:

Bidder Name: _____

Item/Part: _____

Specification Page No. _____

Section No. _____

Section Title: _____

Sub-Section: _____

DETAILS OF SUBMITTAL REQUEST

CHECK ALL CRITERIA APPLICABLE TO REQUEST SUBMITTAL

_____ A. JUSTIFICATION _____ B. PRINTS _____ C. SAMPLES

_____ D. TESTING/FIELD EXP. _____ E. VARIANCES _____ F. COMPARISON

_____ G. OTHER

BIDDER EXPLANATION

*For each criteria selected above, attach supporting documents; failure to furnish required documents may result in CTA's inability to evaluate and approve Bidder's proposed equals, deviations and subcontractors.

CERTIFICATION REGARDING A DRUG FREE WORKPLACE

Pursuant to the definitions regarding a Drug Free Workplace provided in the Drug-Free Workplace Act of 1988, the Illinois Drug Free Workplace Act, 30 ILCS 580/1 *et seq.*, the Illinois Substance Abuse Prevention on Public Works Projects Act, 820 ILCS 265/1 *et seq.*, the Federal Acquisition Regulation System ("FAR"), Procedures for Transportation Workplace Drug & Alcohol Testing Programs, 49 CFR 40, and Prevention of Alcohol Misuse & Prohibited Drug Use in Transit Operation, 49 CFR 655, _____ ("Contractor") certifies to the best of its knowledge and belief that it and its principals:

1. Maintain a workplace(s) (i.e. the site(s) for the performance of work done by the Contractor in connection with this contract) safe and free from "controlled substances" as described in the Controlled Substances Act (21 U.S.C. 812) and as further described in regulations 21 CFR 1308.11 - 1308.15.
2. Have neither been convicted, including entering a plea of 'nolo contendere,' nor had sentence imposed by any judicial body charged with the responsibility to determine violations of Federal or State criminal drug statutes.
3. Publish and give notice to its employees and sub-contractors that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Contractor's workplace, and also that actions will be taken against any and all employees and sub-contractors found to be violation of same.
4. Provide that all employees engaged in the performance of the contract receive a copy of the above statement, that the employee will abide by the terms of this statement, and that the employee will notify the employer in writing of the employee's conviction no later than five (5) calendar days after such conviction.
5. Provide for appropriate action against an employee for violation of any and all of these rules and that an employee convicted of drug abuse must satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by Federal, State, or local health or law enforcement or other appropriate agency.
6. Comply with all drug and alcohol policies, testing programs and reporting requirements set forth in 49 CFR 40 and 49 CFR 655 whenever the Contractor, its employees, or sub-contractor(s) perform one or more of the following functions considered "safety-sensitive", as defined in 49 CFR 655:
 - a. Operating a revenue service vehicle, including when not in revenue service;
 - b. Operating a non-revenue service vehicle, when required to be operated by a holder of a Commercial Driver's License;
 - c. Controlling dispatch or movement of a revenue service vehicle;
 - d. Maintaining (including repairs, overhaul and rebuilding) a revenue service vehicle or equipment used in revenue service; or
 - e. Carrying a firearm for security purposes.
7. Have in place a written program which meets or exceeds the program requirements of the Substance Abuse Prevention on Public Works Projects Act (820 ILCS 265/1 *et seq.*) to be filed with the Authority and made available to the general public, or have in place a collective bargaining agreement which deals with the subject matter of the Substance Abuse Prevention on Public Works Projects Act (820 ILCS 365/1 *et seq.*).
8. Will otherwise comply with all drug and alcohol policies set forth in applicable Federal, State and local laws and regulations, including, but not limited to the Drug-Free Workplace Act of 1988, FAR, Illinois Drug Free Workplace Act, 49 CFR 40 and 49 CFR 655 in such version, prior or subsequent to amendment or revision, as is currently enforced or enforceable at and during the execution and performance of this Contract.

In addition to other remedies, the Contractor's failure to comply with any part of the requirements of the Drug-Free Workplace Act of 1988, FAR, Illinois Drug Free Workplace Act, the Illinois Substance Abuse Prevention on Public Works Projects Act, 49 CFR 40 or 49 CFR 655, may render the Contractor subject to any or all of the following: suspension of payments, termination of contract for default, suspension or debarment.

Signature and Title of Authorized Official

Date

**CERTIFICATION OF PRIMARY PARTICIPANT
REGARDING DEBARMENT, SUSPENSION, AND OTHER
RESPONSIBILITY MATTERS**

_____, certifies to the best of our knowledge and belief that it and
(Company's name)

its principles:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
2. Have not within a three-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.
3. Are not presently indicated for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (2) of this certification; and
4. Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

THE PRIMARY PARTICIPANT (APPLICANT OR POTENTIAL CONTRACTOR FOR A MAJOR THIRD PARTY CONTRACT) _____ CERTIFIES OR
(Company name)
AFFIRMS THE TRUTHFULNESS AND ACCURACY OF THE CONTENTS OF THE STATEMENTS SUBMITTED ON OR WITH THIS CERTIFICATION AND UNDERSTANDS THAT THE PROVISIONS OF 31 U.S.C. SECTIONS 3801 *ET SEQ.* ARE APPLICABLE THERETO.

(Signature and Title of Authorized Official)

If you are unable to certify to any of the statements in this certification, the participant shall attach an explanation to this certification.

**CERTIFICATION OF LOWER TIER PARTICIPANT
REGARDING DEBARMENT, SUSPENSION, AND OTHER
RESPONSIBILITY MATTERS**

_____, certifies to the best of our knowledge and belief that it and
(Company's name)

its principles:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
2. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of frauds 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.
3. Are not presently indicated for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (2) of this certification; and
4. Have not within a three-year period preceding this application/ proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

THE LOWER TIER PARTICIPANT (APPLICANT OR POTENTIAL CONTRACTOR FOR A MAJOR
THIRD PARTY CONTRACT) _____ CERTIFIES
(Company name)
OR AFFIRMS THE TRUTHFULNESS AND ACCURACY OF THE CONTENTS OF THE STATEMENTS
SUBMITTED ON OR WITH THIS CERTIFICATION AND UNDERSTANDS THAT THE PROVISIONS OF
31 U.S.C. SECTIONS 3801 *ET SEQ.* ARE APPLICABLE THERETO.

(Signature and Title of Authorized Official)

If you are unable to certify to any of the statements in this certification, the participant shall attach an explanation to this certification.

LOBBYING CERTIFICATION

Certification for Contracts, Grants, Loans and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) 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 an 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.
- (2) 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 an 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.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub awards at all tiers (including subcontracts, sub grants, and contracts under grants, loans and cooperative agreements) and that all sub recipients shall certify and disclose accordingly.

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 section 1352, title 31, U.S. Code. 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.

Executed this _____ day of _____, 20_____.

By: _____
(Type or print name of contractor)

(Signature of authorized officer)

(Title of authorized officer)

BIDDER'S PRICE CERTIFICATION

The _____ hereby certifies that the prices quoted herein
(Name of Company)
are "Equal To" or "Not Greater Than" prices currently quoted to their most favored customers.

By: _____
(Signature of Company Official)

(Official's Title)

(Date)

ATTEST:

(Secretary)

AFFIDAVIT OF PROMPT PAYMENT

The undersigned affirms, to the best of his/her knowledge and belief, that:

- (1) The undersigned understands and agrees that the Prime Contractor is required to pay all Subcontractors for all work that any Subcontractor has satisfactorily completed no later than 14 business days after the Prime Contractor has received payment from the Authority.
- (2) The undersigned understands and agrees that the Prime Contractor is required to pay all retainage amounts, if any, to all Subcontractors no later than 14 business days after any Subcontractor has satisfactorily completed its portion of the work, whether or not the Authority has paid the Prime Contractor for that portion of the work.
- (3) The undersigned understands and agrees that any delay in or postponement of payment to any Subcontractor by the Prime Contractor requires good cause and prior written approval of the General Manager, Purchasing.
- (4) The undersigned understands and agrees that the Authority will not pay the Prime Contractor for Services performed or Deliverables submitted unless and until the Prime Contractor certifies that the Subcontractors have been promptly paid for the work or services they have performed under all previous payment requests, as evidenced by the filing with the Authority the Prime Contractor's sworn statement that he/she has complied with the prompt payment requirements.

The undersigned solemnly declares and affirms under penalty of perjury that the above and foregoing are true and correct, and that he/she is authorized on behalf of the Prime Contractor to make this affidavit.

(Name of Prime Contractor)

(Signature)

(Name and Title of Affiant)

(Date)

On this _____ day of _____, 20____, the

(Title of Affiant)

(Name of Company)

is personally known to me as the person described in the foregoing Affidavit, acknowledged that he/she executed the same in the capacity therein stated and for the purpose therein contained.

IN WITNESS OF, I hereunto set my hand and official seal.

Signature of Notary Public

My Commission Expires: _____

SEAL

AFFIDAVIT OF MINIMUM WAGE PAYMENT

The undersigned affirms, to the best of his or her knowledge and belief, that:

- (1) The undersigned understands and agrees that the Contractor and its Subcontractors are required to pay certain employees \$13.00 ("Minimum Wage") per hour for all work that qualifies under Transit Board Ordinance No. 014-124 ("Minimum Wage Ordinance").
- (2) The undersigned understands and agrees that the Contractor, or Subcontractor, as applicable, is required to pay Minimum Wage to:
 - a) all Contractor and Subcontractor employees performing work or services on property owned or controlled by the Authority or at any other location specified by the Authority in the Contract as the location for performance of the work or services;
 - b) those Contractor and Subcontractor employees who are directly performing work or services for which the Authority pays the Contractor an hourly rate or per piece work rate for work; and
 - c) those Contractor and Subcontractor employees who fulfill the Authority's requirement for the Contractor to provide specified work hours or a specified number of workers;

Except as otherwise set forth in the contract and the Minimum Wage Ordinance.

- (3) The undersigned understands and agrees that the Contractor and its Subcontractors must cooperate in any investigation by the Authority regarding compliance with the Minimum Wage Ordinance. Failure of the Contractor or any of its Subcontractors to comply with the Minimum Wage Ordinance or to cooperate in such an investigation is grounds for the Authority declaring the Contractor in default of this Contract and exercising such remedies as the Authority deems appropriate.
- (4) The undersigned understands and agrees that the Authority will not pay the Contractor for services performed or deliverables submitted unless and until the Contractor or Subcontractor, as applicable, certifies that the qualifying employees are being paid the Minimum Wage, as evidenced by the filing with the Authority this sworn statement that it has complied with the Minimum Wage requirements.

The undersigned solemnly declares and affirms under penalty of perjury that the above and foregoing are true and correct, and that he or she is authorized on behalf of the Contractor or Subcontractor to make this affidavit.

(Name of Prime/Sub Contractor)

(Signature)

(Name and Title of Affiant)

(Date)

On this _____ day of _____, 20____, the

(Title of Affiant)

(Name of Company)

is personally known to me as the person described in the foregoing Affidavit, acknowledged that he/she executed the same in the capacity therein stated and for the purpose therein contained.

IN WITNESS OF, I hereunto set my hand and official seal.

Signature of Notary Public

My Commission Expires: _____

SEAL

BRIEF HISTORY OF YOUR COMPANY

Tell us about your company:

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Local Contact Person: _____

Title: _____

Phone Number: () _____ - _____ Fax Number: () _____ - _____

E-Mail: _____

How many years has your company been in business? _____

How many employees? _____ *Annual Sales?* _____

Is your business a (an): (check one)

Manufacturer ____ *Supplier* ____ *Distributor* ____ *Other (explain)* _____

Have you provided goods or services to city government, state, county, Board of Education, municipality, etc.?

Please provide a list of references including the three (3) largest companies your firm has done business with in the past two (2) years, and a person and a telephone at that firm which CTA may contact.

Firm Name

Contact Person

Telephone

PROPOSAL (Continued)
TO BE EXECUTED BY A CORPORATION

The undersigned hereby acknowledges having received a full set of CONTRACT DOCUMENTS (Requirements for Bidding and Instructions to Bidders; General Conditions; Standard Government Requirements; Special Conditions Disadvantaged Business Enterprise Commitment; Special Conditions, if any, issued with the specifications; and all other forms, certificates, and documents issued with the specifications) AND ADDENDA NOS. (none unless indicated here)

BIDDER MUST INSERT ADDENDA NUMBERS HERE – IF ANY

And the undersigned agrees, if awarded the contract, to perform the contract in accordance with the terms and conditions of the Contract Documents and Addenda, if any, thereto. Notice to the undersigned may be served by mailing to the address hereinafter set forth.

FURTHER, THE UNDERSIGNED, BEING DULY SWORN, DEPOSES AND STATES ON OATH THAT the undersigned has not entered into any agreement with any other bidder or prospective bidder or with any other person, firm or corporation relating to the price or prices named within the undersigned proposal or any other proposal, nor any agreement or arrangement under which any person, firm or corporation is to refrain from bidding, nor any agreement or arrangement for any act or omission in restraint of free competition among bidders, and has not disclosed to any person, firm or corporation the terms of the undersigned's proposal or the price or prices named herein. As required by Section 33E-11 of the Illinois Criminal Code of 1961, as amended (the "Act"), the undersigned certifies that the undersigned contractor or any agent, partner, employee or officer of the contractor is not barred from contracting with any unit of state or local government as a result of engaging in or being convicted of either bid-rigging in violation of Section 3 of Article 33E or bid-rotating in violation of Section 4 of Article 33E of the Act or any similar offenses of any state or the United States that contain the same elements as the offenses of bid-rigging or bid-rotating.

Name of Corporation: _____
(Print or Type Name of Corporation)

Business Address: _____
(Print or Type Street, City, State and Zip Code)

BY: _____
SIGNATURE OF AUTHORIZED OFFICER*

Title of Signatory: _____
(Print or Type)

*Note: If signed by any person other than the corporate President or Vice President, a certified copy of a resolution or by-law authorizing such person to sign must accompany this Proposal.

State of _____

County of _____

Signed and Sworn to before me on:

by _____
(Printed name of Authorized Officer)

(Signature of Notary Public)

(NOTARIAL SEAL)

IF BIDDER IS A CORPORATION – THIS PAGE MUST BE EXECUTED

PROPOSAL (Continued)
TO BE EXECUTED BY A SOLE PROPRIETOR

The undersigned hereby acknowledges having received a full set of CONTRACT DOCUMENTS (Requirements for bidding and Instructions to Bidders; General Conditions; Standard Government Requirements; Special Conditions Disadvantaged Business Enterprise Commitment; Special Conditions, if any, issued with the specifications; and all other forms, certificates, and documents issued with the specifications) AND ADDENDA NOS. (none unless indicated here)

BIDDER MUST INSERT ADDENDA NUMBERS HERE - IF ANY

And the undersigned agrees, if awarded the contract, to perform the contract in accordance with the terms and conditions of the Contract Documents and Addenda, if any, thereto. Notice to the undersigned may be served by mailing to the address hereinafter set forth.

FURTHER, THE UNDERSIGNED, BEING DULY SWORN, DEPOSES AND STATES ON OATH THAT the undersigned has not entered into any agreement with any other bidder or prospective bidder or with any other person, firm or corporation relating to the price or prices named within the undersigned proposal or any other proposal, nor any agreement or arrangement under which any person, firm or corporation is to refrain from bidding, nor any agreement or arrangement for any act or omission in restraint of free competition among bidders, and has not disclosed to any person, firm or corporation the terms of the undersigned's proposal or the price or prices named herein. As required by Section 33E-11 of the Illinois Criminal Code of 1961, as amended (the "Act"), the undersigned certifies that the undersigned contractor or any agent, partner, employee or officer of the contractor is not barred from contracting with any unit of state or local government as a result of engaging in or being convicted of either bid-rigging in violation of Section 3 of Article 33E or bid-rotating in violation of Section 4 of Article 33E of the Act or any similar offenses of any state or the United States that contain the same elements as the offenses of bid-rigging or bid-rotating.

Signature of Bidder: _____
(Signature of Bidder)

Name of Bidder: _____
(Print or Type)

Business Address: _____
(Print or Type Street Address)

(Print or Type City, State and Zip Code)

State of _____

County of _____

Signed and Sworn to before me on:

by _____
(Printed name of Authorized Officer)

(Signature of Notary Public)

(NOTARIAL SEAL)

IF BIDDER IS A SOLE PROPRIETOR - THIS PAGE MUST BE EXECUTED

PROPOSAL (Continued)
TO BE EXECUTED BY PARTNERSHIP OR JOINT VENTURE

The undersigned hereby acknowledges having received a full set of CONTRACT DOCUMENTS (Requirements for bidding and Instructions to Bidders; General Conditions; Standard Government Requirements; Special Conditions Disadvantaged Business Enterprise Commitment; Special Conditions, if any, issued with the specifications; and all other forms, certificates, and documents issued with the specifications) AND ADDENDA NOS. (none unless indicated here)

BIDDER MUST INSERT ADDENDA NUMBERS HERE - IF ANY
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And the undersigned agrees, if awarded the contract, to perform the contract in accordance with the terms and conditions of the Contract Documents and Addenda, if any, thereto. Notice to the undersigned may be served by mailing to the address hereinafter set forth.

FURTHER, THE UNDERSIGNED, BEING DULY SWORN, DEPOSES AND STATES ON OATH THAT the undersigned has not entered into any agreement with any other bidder or prospective bidder or with any other person, firm or corporation relating to the price or prices named within the undersigned proposal or any other proposal, nor any agreement or arrangement under which any person, firm or corporation is to refrain from bidding, nor any agreement or arrangement for any act or omission in restraint of free competition among bidders, and has not disclosed to any person, firm or corporation the terms of the undersigned's proposal or the price or prices named herein. As required by Section 33E-11 of the Illinois Criminal Code of 1961, as amended (the "Act"), the undersigned certifies that the undersigned contractor or any agent, partner, employee or officer of the contractor is not barred from contracting with any unit of state or local government as a result of engaging in or being convicted of either bid-rigging in violation of Section 3 of Article 33E or bid-rotating in violation of Section 4 of Article 33E of the Act or any similar offenses of any state or the United States that contain the same elements as the offenses of bid-rigging or bid-rotating.

Firm Name: _____
(Print or Type Name of Firm)

Business Address: _____
(Print or Type Street Address)

(Print or Type City, State and Zip)

BY SIGNATURE(S):

*All Partners or Joint Ventures
of the Firm must sign this bid
unless one Partner or Joint
Venturer is authorized to sign
for the Partnership or Joint
Venture*

	(Partner)
	(Partner)
	(Partner)
	(Partner)
	(Partner)

State of _____

County of _____

Signed and Sworn to before me on:

by _____
(Printed name of Authorized Officer)

(Signature of Notary Public)

(NOTARIAL SEAL)

IF BIDDER IS A PARTNERSHIP OR JOINT VENTURE - THIS PAGE MUST BE EXECUTED

DISCLOSURE OF OWNERSHIP

All businesses submitting proposals are required to complete the appropriate portion of this form. If more space is needed attach additional pages. In signing and submitting its proposals, of which this Disclosure of Ownership form is a part, the business certifies that the information submitted on this Disclosure of Ownership form is correct as of the date of the submittal of the proposal.

1. IF THE BUSINESS IS A CORPORATION, check this box ☐ and complete:
If the shares of the Corporation are not listed on the New York Stock Exchange or any regional exchange, list then name of each person who possesses either nominal or beneficial ownership or 5% or more of the Corporation's stock (list below). If none, type or print "NONE" in space below.

FEIN #:

Corporate Headquarters Address:
City, State, Zip:

State of Incorporation:

Is the Corporation listed on the New York Stock Exchange? ☐ Yes ☐ No

If the corporation is listed on an exchange other than the New York Stock Exchange, the name of the exchange is _____

TYPED OR PRINTED NAME	%INTEREST
_____	_____
_____	_____
_____	_____
_____	_____

2. IF THE BUSINESS IS A PARTNERSHIP, check this box ☐ and complete:
The name of each general, limited or individual partner entitled to receive 5% or more of the profit derived from partnership activities (list below). If none, type or print "NONE" in space below.

TYPED OR PRINTED NAME	%INTEREST
_____	_____
_____	_____
_____	_____
_____	_____

3. IF THE BUSINESS IS A SOLE PROPRIETORSHIP, check this box ☐ and complete:
The name of each person other than the owner entitled to receive 5% or more of the profits derived from the activities of the business (list below). If none, type or print "NONE" in space below.

TYPED OR PRINTED NAME	%INTEREST
_____	_____
_____	_____
_____	_____
_____	_____

DISCLOSURE – TO BE COMPLETED BY ALL BIDDERS

PROPOSAL (continued)

ACCEPTANCE

The undersigned, on behalf of Chicago Transit Authority, A Municipal Corporation of the State of Illinois, hereby accepts the foregoing bid items as identified in the Proposal.

Contract Number

Total Amount of Contract \$

Dated this _____ day of _____, 2015, at Chicago, Illinois

Vice President, Purchasing/Warehousing

President

Approved as to form and legality, for the sole benefit of CTA. Subject to proper authorization and execution thereof:

Attorney