**REVISION OF SECTION 614**

**TRAFFIC UNINTERRUPTIBLE POWER SUPPLY (UPS)**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

In subsection 614.08(c), first paragraph, delete the first sentence, and replace with the following:

The controller cabinet shall either be a Model 332, 332D, or 336S, as specified in the Contract.

Subsection 614.08 shall include the following:

*Traffic UPS.* The 332D shall have an uninterruptible power supply (UPS), as specified below rack mounted in the left cabinet. The Traffic UPS shall consist of three major components, the Electronics Module, the Power Interface Module, and the Battery System.

The Traffic UPS shall be capable of simultaneously producing a fully regenerated, conditioned and true sine wave, standby and continuous AC outputs.

 Input Voltage: 85VAC to 135VAC

 Input Frequency: 48Hz to 62Hz

 Output Voltage: 120VAC +/- 3%

 Output Frequency: 60Hz

The Traffic UPS shall be capable of running a signalized intersection for a minimum of 2 hours at full operation and an additional 4 hours of flashing operation.

Up to the maximum rating, the Traffic UPS shall be capable of running any combination of signal heads, whether Incandescent, LED or Neon, by any manufacturer, regardless of power factor, without overdriving the poorer power factor LED heads which may cause early degradation, low luminosity or early signal failure.

Upon loss of utility power, the Traffic UPS shall insert battery power into the system via a supplied Power Interface Module (PIM). In case of UPS failure and/or battery depletion, the PIM shall ensure that the UPS will drop out and, upon return of utility power, the traffic control system will default to normal operating mode.

The Power Interface Module (PIM) shall enable removal and replacement of the Traffic UPS without shutting down the traffic control system (i.e. “hot swap” capability). Connectors shall be equipped with a “safety interlock” feature.

The Traffic UPS shall provide for RS232 communication and contact closures for alarm functions. The unit shall have a minimum of three individual contact closures for On Battery, a user selectable Timer and a Low Battery indicator. Each contact closure shall have a Common, Normally Open and Normally Closed contacts.

For 170 or “California” style cabinets, upon loss of power the Traffic UPS shall actuate the existing Flash Transfer Relays (FTRs) and Mercury Contactor (MC) to force the traffic control system into Flash Mode operation. Existing Flasher Modules and Flash Transfer Relays shall be utilized.

The battery system shall be certified and field proven to meet or exceed NEMA temperature standards from –40°C to +74°C.

The traffic UPS shall include a DB-9F connector with open collectors (40 V @ 20 mA) indicating:

1. Loss of Utility Power
2. Inverter Failure
3. Low Battery

An RS232 Interface shall be provided via a DB-9F connector allowing full, interactive, remote computer monitoring and control of the UPS functions.

The UPS shall be equipped with the following functions on the front panel: Power ON, Cold (DC) Start, Alarm Silence, Battery Test, Bypass Breaker, and DC/Battery Breaker.

Calculated MTBF shall be 100,000 hours based on component ratings, except when Bypass and Power Interface Modules are included. When these two additional modules are included, the MBTF shall be 150,000 hours.

The system shall have a mean time to replace or repair the electronics or battery system of 15 minutes or less.