# ORIGINATION FORM

X Modify Specification **Section 992**.
Section/File number

☐ New Section _____.
Section number

**Subject:** Highway Lighting Materials

**Origination date:** June 12, 2008

**Originator:** **Chester Henson**
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**Problem statement:** The magnetic ballast for the 175 watt mercury vapor cannot be sold after January 2008.

**Information source:** The introduction of induction fixtures for sign lighting began in 2006. The Department partnered with lighting manufacturer's on installation of these fixtures for evaluation.

**Background data:** Products were evaluated to determine specification requirements.

**Recommended Usage Note:**

**Expected fiscal impact, if implemented:** The additional cost for each fixture is $1000. The fixture cost is minor compared to the overall cost of the sign assembly. The fixture is less than 2% of the total cost of a sign assembly. The normal mercury vapor lamp life is 10,000 hours or approximately 3 years. The induction lamp life is 100,000 hours or ten times that of mercury vapor. The maintenance of traffic costs for two relampings of the mercury vapor fixture will more than pay for the increased cost of the fixtures. There is a 40% reduction in wattage for induction fixture.

**Desired implementation date:** **Beginning with the January 2009 lettings.**

Florida Department of Transportation

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# M E M O R A N D U M

**DATE:** July 8, 2008

**TO:** Specification Review Distribution List

**FROM:** Rudy Powell, Jr., P.E., State Specifications Engineer

**SUBJECT:** Article 9920400, Highway Lighting Materials – Luminaires, Ballasts, Etc.

In accordance with Specification Development Procedures, we are sending you a copy of a proposed specification change.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via e-mail at ST986RP or rudy.powell@dot.state.fl.us. Comments received after August 7, 2008 may not be considered. Your input is encouraged.

RP/dr

Attachment

**HIGHWAY LIGHTING MATERIALS – LUMINAIRES, BALLASTS, ETC.**
**(REV 6-30-08)**

ARTICLE 992-4 (of the Supplemental Specifications) is deleted and the following substituted:

**992-4 Luminaires, Ballasts, etc.**

Luminaires shall consist of a precision-cast aluminum housing and reflector holder, a refractor-holder latch on the street side, and a hinge with a safety catch on the house side of the luminaire; also a slipfitter suitable for attaching to a 2 inch mounting bracket, gasketing between the reflector and the refractor and the socket entry, an adjustable bracket capable of producing the specified IES type light distributions, and a heat-resistant, high-transmission glass prismatic refractor. Luminaires may be mercury vapor, induction, metal halide, or high pressure sodium vapor, as indicated in the plans.

Unless otherwise indicated in the plans, the luminaires shall have internal ballasts of the regulated output (constant wattage) type, suitable for operating on the circuits shown in the plans. The ballasts shall be pre-wired to the lamp socket and terminal board, requiring only connection of the power-supply leads to the ballast primary terminals. The ballast shall have a power factor of at least 90%. The ballast shall provide for regulation within ±6% variation in lamp watts at a primary voltage variation of ±10% for lamps of 400w or less and provide for regulation within ±13% variation in lamp watts at a primary voltage variation of ±10% for lamps of 750w or greater.

The luminaires shall meet the requirements shown in the plans.

*992-4.1 Induction Fixtures: The fixture shall be rated for 100,000 hours with a minimum lamp efficiency of 70% of lumen output at 60,000 hours. The housing shall be precision cast aluminum with a corrosive resistant polyester powder coat finish. The standard color shall be gray. The cover shall be attached to the housing utilizing stainless steel bolts, and the housing shall be sealed to provide an IP 55 rating or greater. The mounting assembly for a sign light shall be a slipfitter type to accommodate a $1^{1}/_{2}$" schedule 40 steel pipe connection. The luminaire manufacturer shall place a permanent tag on the luminaire housing on which the following is imprinted: the luminaire voltage, lamp wattage and a blank area for the Contractor to inscribe the installation date. The refractor shall be tempered clear or microprismatic glass. The generator/ballast may be internal or external to the fixture. If the generator is internal to the fixture, the maximum operating temperature shall not exceed 130°F when measured at the base point. If the fixture is not compatible with the circuit voltage, step-down transformers shall be provided by the fixture manufacturer to provide for a complete installation. The manufacturer shall provide a non-prorated warranty to the Department. The warranty shall begin on the installation date.*

**992-~~4.1~~ *4.2* Certification:** The Contractor shall provide the Engineer a certification conforming to the requirements of Section 6 from the manufacturer of the luminaries and electrical ballasts confirming that the requirements of this Section are met. Each certification shall cover only one LOT for luminaries and/or electrical ballasts.