Section 630 of the Standard Specifications is hereby revised for this project to include the following:

**DESCRIPTION**

This work consists of furnishing, installing, moving and maintaining sequential flashing warning lights in accordance with these specifications at locations shown on the plans or as directed by the Engineer.

**MATERIALS**

The sequential flashing warning lights shall comply with the requirements of the most current publication of the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), as defined in Section 6F.63 Channelizing Devices and Section 6F.83 Warning Lights.

Sequential flashing warning lights, Type C Steady-Burn warning lights, shall be capable of being placed in a series for use in connection with drums or barricades to form a merging taper.

Warning lights are defined as portable, lens directed, enclosed lights emitting a yellow color. Lights shall conform to the current requirements of the Institute of Transportation Engineers (ITE) “Purchase Specification for Flashing and Steady-Burn Warning Lights”.

Each lens shall be 7 inches in diameter.

Each lamp shall have a low output steady Type C backlight to aid direction indication.

Unless otherwise shown on the plans or directed by the Engineer, Type C lights shall be unidirectional, visible from one side only.

Type C lights shall be equipped with a 0.35 to 0.55 watt bulb or L.E.D. equivalent.

Units shall utilize intelligent wireless communications, to sequence when deployed in any order.

Warning lights shall consist of a metal or plastic case, transistorized electrical circuit, and head. Lights shall be maintained so as to be visible on a clear night from a distance of 3,000 feet and visible on a sunny day when viewed without the sun directly on or behind the device from a distance of 1,000 feet.

Warning lights shall be capable of operating fully and continuously for a minimum of 200 hours when equipped with a full standard battery set.

Warning lights utilizing an internal power source (batteries) shall be constructed so that when batteries are installed, the terminals are on top of the battery. Batteries shall be confined within the case. Terminals on the batteries may be either plug or spring type. All electrical connections shall be of noncorrosive material.

The case for the battery shall be weatherproof and constructed of aluminum, galvanized steel or high impact-resistant plastic. The case shall have vandal-proof fastenings for mounting on barricades or drums.

The warning light complete with a full battery set, shall weigh less than 5.3 pounds and shall be certified as crashworthy Category 1 when firmly affixed to the drum type specified in Section 6F.67 Drums of the MUTCD (2009).

Each light shall utilize a removable transistor circuit which shall be in a weatherproof, hermetically sealed container. Each light shall have a separate concealed manual switch that can be activated externally.

The head for each light shall consist of a housing, reflector, light bulb, and lens. The head shall be capable of rotation up to 180 degrees about its vertical axis. The head shall be sealed against outside atmospheric conditions and attached to the case.

**CONSTRUCTION REQUIREMENTS**

When a series of sequential flashing warning lights are used, the successive flashing of the sequential warning lights shall occur from the upstream end of the merging taper to the downstream end of the merging taper in order to identify the desired vehicle path.

The warning lights, when placed in line, shall automatically self-sequence with up to 250 other such lights. Any such warning light may be placed, at any time, in any place, in a sequence of such lights for the lights to automatically sequence.

The warning lights shall automatically sequence when placed in line in an open area with a distance between light of 10 feet to 60 feet.

Each warning light in the sequence shall be flashed at a rate of 55 to 75 times per minute.

No setting or adjustment to any light shall be required for the sequencing to occur and there shall be no ‘master’ control warning light controlling the sequencing of the lights.

Deployed lamps shall give the visual impression of a single high intensity light (Type B) source traveling a clear path along the taper from front to back.

If one or two units are knocked out or not working, the flashing sequence shall continue. If more than three units are not working, all lights shall be automatically turned to the “off” mode. Non-sequential flashing is prohibited.

Sequential flashing warning lights shall be weather independent and visual obstructions shall not interfere with the operation of the lights.

Lights that are reported out of order by the Engineer shall be replaced or repaired by the Contractor within 12 hours after notification.

Drums are the only channelizing device allowed for mounting of sequential flashing warning lights.

When lane closures are not in effect, the sequential flashing warning lights shall be deactivated.

**METHOD OF MEASUREMENT**

Sequential Flashing Warning Lights will be measured by the actual number of lights that are furnished, installed, and accepted.

**BASIS OF PAYMENT**

Payment will be made under:

**Pay Item Pay Unit**

Sequential Flashing Warning Light Each

Payment for Sequential Flashing Warning Lights will be full compensation for all work and materials required to complete the item.