

Addendum #2

8/20/2024

Replace the specification for SOLAR-POWERED FLASHING BEACON ASSEMBLY (COMPLETE) on pages 67-71 of the Special Provisions with the following specification.

SOLAR-POWERED FLASHING BEACON ASSEMBLY (COMPLETE)

Description: This work shall be performed in accordance with the applicable portions of Sections 702, 801, and 806 of the Standard Specifications insofar as applicable, and the latest edition of the MUTCD except as modified herein.

This work shall consist of furnishing and installing both Rectangular Rapid Flashing Beacons (RRFB) for one crosswalk location; power supply; traffic signal posts; foundations; pedestrian push buttons; warning signs and plaques; controller and cabinet; and wireless communication equipment as shown on the plans and/or as specified by the Engineer. All equipment and hardware required to mount the RRFB and associated equipment to the assembly shall be included in the unit cost of this item.

All components shall be manufactured and assembled as a complete system and consist of the following:

1. Rectangular Rapid Flashing Beacon

The Contractor shall be responsible for removal of any existing pedestrian crossing and flashing sign systems. Each RRFB assembly shall satisfy the FHWA Interim Approval for Optional Use of Pedestrian Actuated Rectangular Rapid Flashing Beacons at Uncontrolled Marked Crosswalks (IA-21), dated March 20, 2018, and all subsequent FHWA Official Interpretation Letters and the 2009 edition of the Manual of Uniform Traffic Control Devices (MUTCD), including the unit size, mounting location, flash rate, and operational parameters unless modified herein by this special provision. The RRFB assembly shall be programmable to allow the City Public Works Department to set the duration of the flashing beacon display based on the crossing time requirements established in the MUTCD. The Contractor shall furnish and install two direction RRFB units with far side indicator light mounted to the sign structure as indicated on the plans. The RRFB shall be rated for Class I light intensity output according to the Society of Automotive Engineers (SAE) Standard J595 with a 15 year life expectancy. The minimum size of the LED beacon shall be 7 inches x 3 inches. The RRFB shall be able to be seen at least 1,000 feet in advance of the crossing during the day. During the night time hours, the RRFB shall be equipped with an automatic dimming feature. The RRFB shall have an operating temperature meeting NEMA specifications.

2. Power Supply

The installation shall consist of a solar powered power supply.

The solar power supply shall be easy to install, fully self-contained weather, corrosion, and vandal-resistant, with a UV-resistant solar panel. The solar power supply shall be power autonomous without need of an external power supply. The batteries shall be sealed, maintenance free, and field-replaceable independently of other components. The battery pack shall have a minimum rated lifespan of three years. The power supply system shall have the capacity to operate the RRFB for 30 days at a normal use of 400 activations of 30 seconds per day without solar charging. The RRFB shall have an automatic light control to provide useful light during extreme conditions that prevent charging over an extended period of time. The manufacturer shall provide documentation for each installation consisting of solar power calculations to verify load, duty cycle and battery capacity based on location.

The solar panel shall be installed at the highest point on the assembly structure, or as directed by the Engineer, and away from the travelled way. The solar panel shall be installed at an angle specified by the manufacturer facing the equator (due south) with a full unobstructed solar exposure for optimum performance of the system, or as recommended by the manufacturer and directed by the Engineer. If batteries are to be installed in a separate cabinet, the cabinet shall be a minimum of seven feet above the ground and located on the post as to be not over the sidewalk, bike path or trail.

3. Controller

The RRFB controller shall meet the requirements of Section 858 of the "Standard Specifications" except where modified herein:

- a. Controller to Controller Communication: At each location all installed RRFB assemblies shall communicate wirelessly using an unlicensed radio band so as to simultaneously commence operation of their alternating rapid flashing indications and cease operation simultaneously. The communication equipment shall comply with FCC requirements and the vendor representative shall field test the equipment prior to placing the units in operation to demonstrate the RRFBs ability to achieve proper operation under the requirements of FHWA Memorandum IA-21 and all subsequent interpretation letters. Up to 10 optional RF channels shall be available to allow multiple RRFB Systems to operate within close proximity of each other.
- b. Timing: The controller shall provide the full programmed timing upon all push button activations. Additionally, the controller shall be have the capability to cause manual activation of RRFB system for the duration of school crossing times when a crossing guard is present.
- c. The controller shall be housed in a NEMA Type 4 cabinet.

4. Traffic Signal Post:

The traffic signal post shall meet the requirements of Section 875 of the "Standard Specifications" for traffic signal post with height as specified on the plans.

5. Foundation:

The traffic signal post foundation shall be a Traffic Signal Concrete Foundation Type A. The foundation shall meet the requirements of Section 878 of the "Standard Specifications"

6. Pedestrian Push Button:

The pedestrian push button shall meet the requirements of Section 888 of the "Standard Specifications".

7. Signs:

Each RRFB assembly shall include two crossing signs (W11-2) 36 inch x 36 inch dimension, two diagonal downward pointing arrow (W16-7P) plaques 24 inch x 12 inch dimension, and a R10-25 9 inch x 12 inch dimension, mounted as part of or above the pedestrian push button. The W-series sign panels shall be manufactured with fluorescent yellow green type ZZ sheeting meeting the requirements of Section 1091 of the "Standard Specifications". The R-series signs shall be manufactured with type AP sheeting meeting the requirements of Section 1091 of the "Standard Specifications" and shall be vandal resistant. All signs shall meet the latest requirements of the MUTCD. The signs shall have brackets and sign channels which are equal to and completely interchangeable with those used by the highway jurisdiction's maintenance agency.

All materials shall be warranted for three years from date of acceptance or turn on by the Owner.

The SOLAR-POWERED FLASHING BEACON ASSEMBLY (COMPLETE) shall be installed strictly according to the manufacturer's recommendations, the applicable portions of the "Standard Specifications" as modified herein, as shown on the Plans, and/or as directed by the Engineer.

The final elevation and location of the beacons shall be approved by the Engineer prior to the Contractor beginning work.

Basis of Payment: This work will be paid for at the contract unit price per each for SOLAR-POWERED FLASHING BEACON ASSEMBLY (COMPLETE), which price shall include all labor, equipment and materials, and incidental expenses necessary to furnish the components, signs, posts, foundations, hardware, cables, connectors, and brackets necessary for installation of each sign assembly.