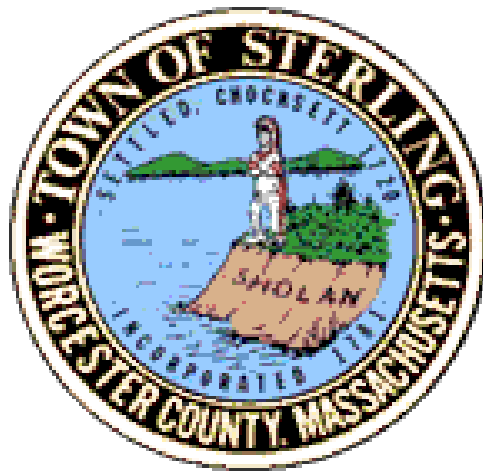


Town of Sterling

IFB #2023-RRFB

RRFB Pedestrian Crossings Signals

March 27, 2023



ADVERTISEMENT TO BID
MGL c.30 §30B Over \$50K

The **TOWN OF STERLING**, the Awarding Authority, invites sealed bids from vendors for the furnishing of 11 sets of Rectangular Flashing Beacons (RRFBs)

The Project consists of but is not limited to:

The proposed improvements include furnishing Rapid Flashing Beacons (RRFBs)

Projected Contract Cost: \$100,000

Bid documents available: COMMBUYS, www.sterling-ma.gov

All bidding Requests for Information (RFIs) shall be forwarded to bcaldwell@sterling-ma.gov

Bids will be received until **April 28, 2023 at 10:00AM EST** and publicly opened at the Sterling Town Hall 1 Park Street, Sterling, MA 01564

INVITATION FOR BIDS

I. INVITATION FOR BIDS – GENERAL INFORMATION AND REQUIREMENTS

- All Bids must be delivered by **10:00 am on April 28, 2023** to:
William Caldwell
Town Administrator
1 Park Street
Sterling, MA 01564
- Bids must be delivered in a manner such that the package is hand-delivered to a Sterling Town Hall employee. If the bidder is using a delivery service, the package must be signed for by a Sterling Town Hall staff member to be considered properly delivered.
- Bids received after the time and date established herein **SHALL NOT** be accepted or considered, regardless of the cause for delay in the receipt of such proposal(s).
- If, at the time of the scheduled proposal due date, the Sterling Town Hall is closed due to uncontrolled events such as fire, wind, or building evacuation, the proposal opening will be postponed until 12:00 noon on the next normal business day. Proposals will be accepted until that date and time.
- Submit the proposal in a sealed envelope clearly marked “***Sterling IFB RRFB-2023***”
- The proposal must include a Non-Collusion form, Tax Compliance Certificate and other Attachments listed below.

- **The proposal must also include a Bid Signature Form.** When the Bid Signature Form is completed, it declares:
 - The only parties interested in this bid are the Principals named herein.
 - No officer, agent or employee of the Town of Sterling has a direct or indirect interest in this bid.
- The proposal must be signed as follows: 1) if the bidder is an individual, by her/him personally; 2) if the bidder is a partnership, by the name of the partnership, followed by the signature of each general partner; and 3) if the bidder is a corporation, by the authorized officer, whose signature must be attested to by the Clerk/Secretary of the corporation and the corporate seal affixed.
- Any bid may be withdrawn prior to the bids submittal due date. However, bidders may not withdraw or modify their bid for a period of ninety (90) days following the opening of bids.
- The contract will be awarded within thirty (30) days after the proposal receipt. The time for award may be extended for up to 45 additional days by mutual agreement between the Town and the apparent lowest responsive and responsible bidder.
- Questions concerning this invitation for proposals must be submitted in writing to: William Caldwell at bcaldwell@sterling-ma.gov
- Any and/or all work is subject to available funds. The Town reserves the right to waive any informalities in, or to reject, any or all bids should the Town deem it to be in the Town's best interest to do so.
- The Town of Sterling may cancel this IFB, or reject in whole or in part any and all proposals, if the Town determines that cancellation or rejection serves the best interests of the Town.
- Below is a list of all Attachments. Bidders should note that Attachments A-D must be completed.

II. PROJECT DESCRIPTION

- Furnish Rectangular Flashing Beacons (RRFBs)
- Quantity: eleven (11)
- Specifications: See below

Delivery Requirements: All delivery charges shall be included in the contract unit prices under various items. The Delivery shall be made to the owner within the Town of Sterling as designated by the Town.

III. PRICING AND PAYMENT

- The Town shall pay and the Contractor shall receive the prices stipulated in the bid made a part hereof as full compensation for everything performed and for all risks and obligations undertaken by the Contractor under and as required by the Contract.
 - The Town reserves the right to increase or decrease the scope of the Contract work by up to and including twenty-five percent (25%) of the original scope without adjusting the lump sums or unit prices.

IV. RULE FOR AWARD

- The responsive and responsible bidder meeting the requirements described in described in Section II: Project Description and offering the lowest **Base Bid Price**.

<u>ITEM RRFB</u>	<u>RECTANGULAR RAPID FLASHING BEACON (SOLAR). LOCATION 1</u>	<u>LUMP SUM</u>
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All work under this item shall conform to the relevant provisions of Section 800 of the MassDOT Standard Specifications for Highways and Bridges and the following:

Description

The work shall include furnishing a solar-powered, pedestrian actuated, rectangular rapid flashing beacon (RRFB) system. RRFBs are intended to provide supplemental warning to approaching vehicles of the potential for pedestrians to be crossing in an adjacent crosswalk.

Materials

An RRFB system shall, at a minimum, consist of the following items, which shall be included in the lump sum bid:

- (2) 15' traffic signal posts (painted black) and pedestals (painted black);
- (2) APS pushbutton systems (painted black);
- (4) dual rectangular yellow LED beacons in NEMA enclosures (painted black);
- (2) 9"x12" R10-25 (PUSH BUTTON TO TURN ON WARNING LIGHTS) signs;
- (4) 30"x30" W11-2 (Pedestrian Warning) signs;
- (2) 24"x12" W16-7pR and (2) 24"x12" W16-7pL (Diagonal Downward Arrow) signs;
- (2) solar panels;
- (2) NEMA Type 3R or higher enclosures (painted black) to house:
 - Electrical components, including wiring and solid-state circuit boards;
 - On-board user interface;
 - Battery; and
 - Frequency hopping spread spectrum (or other alternate FCC approved) wireless activation unit with a minimum 150' range; and
- All mounting and supporting hardware (painted black) and wiring necessary to complete a

working system.

RRFB controller and LED beacons, APS pushbutton systems, and traffic signal posts and pedestals shall be listed on the Qualified Traffic Control Equipment List. Pedestals shall be cast iron.

The light intensity of the LED beacons during daytime conditions shall meet the minimum specifications of Class 1 yellow peak luminous intensity in the Society of Automotive Engineers (SAE) Standard J595 (Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles) dated January, 2005. An automatic signal dimming device shall be included to reduce the brilliance of the LED beacons during nighttime conditions.

All signs shall be MUTCD-compliant. R10-25 signs shall have a black border and legend on a white background. W11-2, W16-7pR and W16-7pL signs shall have a black border and legend on a fluorescent yellow-green background. All sign sheeting materials shall be per Subsection 828.41.

R10-25 signs may be integrated into the APS pushbutton system as a single unit or mounted separately on Type A aluminum.

W11-2, W16-7pR, W16-7pL signs shall be Type A aluminum per Subsection 828.42.

Any proprietary software required for the programming and/or operation of the system shall be included at no additional cost.

Solar Power System for Flashing Warning Beacon

Solar-powered components shall conform to the following:

1. The Contractor shall conduct and submit a solar power report to determine the necessary size of the solar panels to maintain activation through a typical December at the subject locations with parameters including; but not limited to, activations per day, maximum daily activations, available sunlight, temperature, etc. (Solar power calculations shall be supplied to the Engineer for review before the flasher RRFB is approved for installation).
2. The solar power system shall furnish enough energy to supply the total daily power consumption of the sign and to recharge batteries in the New England temperature and solar exposure environment to be found at the location of the RRFB deployment.
3. RRFB shall be solar powered with a battery reserve. Each RRFB shall be powered by a multi-panel solar array and bank of deep-cycle maintenance free rechargeable batteries designed for photovoltaic applications. Solar powered RRFB shall operate year-round, 24 hours per day, with a load of 25 percent of pixels ON with no external charge required.
4. The solar panels and battery shall have a minimum operating temperature range of -40° to 122°F (-40° to 50°C).
5. The batteries shall conform to Battery Council International specifications and have a capacity allowing up to 30 days of autonomy without sunlight and varying with ambient temperature and number of activations. The batteries shall be rated for a minimum lifespan of 3 years. Batteries shall be replaceable independent of other components.
6. The RRFB shall also include power inputs for connections to external power sources from either utility company AC line service or generator supplied power.

7. The solar power system shall conform to the following:
 - a. The solar panel array shall provide sufficient power to meet RRFB operational performance specifications identified in this Special Provision.
 - b. A photovoltaic controller shall be provided to monitor batteries and maintain the maximum power level without over-charging the batteries. The photovoltaic controller shall provide an automatic load disconnect if a low voltage condition is detected and shall automatically reconnect the load upon power restoration.
 - c. The solar panel array shall be inclinable in two axes to optimize the solar collection and charging capabilities of the solar panels. The solar panels shall rotate a full 360° and shall tilt up to 70° from horizontal.
8. The battery bank shall supply enough energy to provide the RRFB with at least 21 days of operational autonomy without any charge from any device (solar panels disconnected) considering all environmental impacts (heat and cold) on the battery bank as per IEEE Recommended practice for sizing Lead-Acid Batteries. (Battery power calculations shall be supplied to the Engineer for review before the flasher is approved for installation).
 - a. Batteries shall be installed in the battery box for ease of access and maintenance.
 - b. Batteries shall be deep-cycle type, suitable for solar power applications.
 - c. Batteries shall be in a lockable cabinet. This cabinet shall have enough ventilation to evacuate the gas generated by the batteries
9. Battery Box Requirements: A chest style battery box enclosure shall be provided for the bank of batteries. The battery box shall meet or exceed the following requirements:
 - a. Constructed of .125" 5052-H32 aluminum, or Approved Equivalent.
 - b. White polyester powder coat finish
 - c. NEMA 3R environmental rating
 - d. Stainless steel continuous hinge
 - e. Include screened louvers on both sides to provide filtered ventilation
 - f. Include 2" extruded polystyrene insulation
 - g. Include stainless steel padlock hasp
 - h. All welds shall be sanded smooth
 - i. Contractor shall provide a warranty valid for a minimum of 2 years for all batteries and solar panels.

Functional Requirements

The RRFB system shall remain dark until pedestrian actuation.

Upon actuation, all LED beacons shall activate and flash in a rapidly flashing sequence. Each sequence shall last 800 milliseconds and there shall be 75 sequences per minute. The sequence shall be the same for each pair of LED beacons in an enclosure and shall be as follows:

1. The RRFB indication on the left-hand side shall be illuminated for approximately 50 milliseconds.
2. Both RRFB indications shall be dark for approximately 50 milliseconds.

3. The RRFB indication on the right-hand side shall be illuminated for approximately 50 milliseconds.
4. Both RRFB indications shall be dark for approximately 50 milliseconds.
5. The RRFB indication on the left-hand side shall be illuminated for approximately 50 milliseconds.
6. Both RRFB indications shall be dark for approximately 50 milliseconds.
7. The RRFB indication on the right-hand side shall be illuminated for approximately 50 milliseconds.
8. Both RRFB indications shall be dark for approximately 50 milliseconds.
9. Both RRFB indications shall be illuminated for approximately 50 milliseconds.
10. Both RRFB indications shall be dark for approximately 50 milliseconds.
11. Both RRFB indications shall be illuminated for approximately 50 milliseconds.
12. Both RRFB indications shall be dark for approximately 50 milliseconds.

The flash rate of each individual RRFB indication, as applied over the full flashing sequence, shall not be between 5 and 30 seconds.

All RRFBs within the system shall commence and cease operation simultaneously.

The length of the flashing cycle upon actuation and the minimum allowable time between actuations shall be per the plans. These settings shall be user-programmable through the on-board user interface. No-fee wireless (Wi-Fi, Bluetooth®, etc) may be used as an alternative programming method.

Each APS pushbutton shall have a tactile arrow and locator tone. The tactile arrow shall be oriented to point in the direction of the crosswalk. The locator tone shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals. The locator tone shall be set 2 to 5 dBA above ambient sound, shall automatically adjust intensity, but cap at a maximum volume of 100 dBA. The tone shall be audible whenever the LED module are not active.

Upon activation of the LED modules, a speech message shall state, “Yellow lights are flashing.”. This message shall be stated twice. No vibrotactile or percussive indications shall be used.

If a pushbutton is pressed before the minimum time between actuation intervals is met, a speech message shall state “Wait” and the locator tone shall resume until the LED modules activate.

Basis of Payment

Rectangular Rapid Flashing Beacon (Solar), Location 1 will be paid for at the Contract unit price per lump sum, respectively, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

**ATTACHMENT A
BID PRICING SHEET**

**TOWN OF STERLING
BID FORM FOR
IFB #2023-RRFB
RRFB Pedestrian Crossings Signals**

Bid Item	Description	Estimated Quantity	Unit Price	Total Price
1	Furnish and deliver rectangular rapid flashing beacons, as specified, complete	11	\$____/EA	

TOTAL COST \$_____

Total Cost in Writing
\$ _____

The Town of Sterling reserves the right to alter the street list due to availability of funds.

The quantities shown in the Bid Form are approximate only, being given as a basis for the comparison of bids and to determine the approximate amount of the consideration of the contract. The bidder will be required to complete the work specified whether the required quantities are more or less than the amounts herein estimated without any change in the contract unit price. The final payment will not be made until the work is so completed.

The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. The term "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity."

We, the undersigned herewith submit our Proposal for furnishing the following indicated product in accordance with the Town of Sterling's Notice of Bid and Specifications.

The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. The term "person" "shall mean any natural person, joint venture, partnership, corporation or other business or legal entity"

Signature of individual submitting bid or proposal

Printed Name of individual submitting bid or proposal

Business Phone Number

ATTACHMENT B
CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

Signature of individual submitting bid or proposal

Printed Name of individual submitting bid or proposal

Name of business

ATTACHMENT C

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, §49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Signed under the pains and penalties of perjury.

Signature of individual submitting bid or proposal

Printed Name of individual submitting bid or proposal

Name of business

ATTACHMENT D
SIGNATURE FORM

This Bid must bear the written signature of the Bidder or authorized agent of the Bidder. If the Bidder is a corporation or a partnership, the Bid must be signed by a duly authorized officer of such corporation or by a partner; the title of such officer must be stated.

The bidder hereby acknowledges the receipt of, and has included in this BID, the following Addenda:

Signature

Name of Corporation, Company or Individual

Printed Name of Person Authorized to Sign

Title

Email Address

