



CITY OF COACHELLA

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June 01, 2011

Director of the Office of Transportation Operations
U.S. Department of Transportation
Federal Highway Administration
Office of Transportation Operations, HOTO-1
1200 New Jersey Avenue, S.E., E84-477
Washington, D.C. 20590

Subject: Request for Permission to Experiment – Circular Rapid Flashing Beacon

Dear Sir or Madam:

The City of Coachella, California, requests permission to conduct an experiment using a circular Rapid Flashing Beacon (RFB). The purpose of the experiment will be to determine the effectiveness of a circular RFB in increasing driver yielding compliance to pedestrians crossing the street at uncontrolled locations versus locations using a Rectangular Rapid Flashing Beacon (RRFB).

Sincerely,

Mark Chappell, P.E. – Senior Civil Engineer (City of Coachella)

Attachments

BACKGROUND AND NATURE OF THE PROBLEM

The California Traffic Control Device Committee (CTCDC) has not yet approved the Rectangular Rapid Flash Beacon (RRFB) for use in the State. The CTCDC has raised questions as to whether a similar device using standard CA MUTCD circular indications, modified with LED-lights and the rapid flash pattern, would be as effective. Therefore, the City of Coachella has proposed to evaluate the effectiveness of both devices in its application with the CTCDC. We ask for approval to experiment with the Circular Rapid Flash Beacon (CRFB) from FHWA.

The locations we have selected for these have a real safety issue. The Coral Mt. Elementary School Access Road at Van Buren Street location has 85th percentile speeds of 58 mph where children cross the road to go to school. The Bagdad Avenue at Harrison Street location has 85th percentile speeds of 44 mph over 4 lanes with many people crossing there and about 18,000 ADT. In the past – years, - pedestrian-involved crashes have been recorded at Coral Mt. Elementary School Access Road at Van Buren Street location, while – were recorded at the Bagdad Avenue at Harrison Street location. – of these crashes were fatal. Both are along critical routes to school. Neither of these locations meet warrants for traffic signals.

1. A DESCRIPTION OF THE PROPOSED CHANGE

For the purpose of this experiment, a standard flashing 8” round beacon as defined in the CA MUTCD will be modified with high intensity lights that operate using the RRFB rapid flash pattern for comparative analysis.

The two alternatives will be tested independently at the same locations.

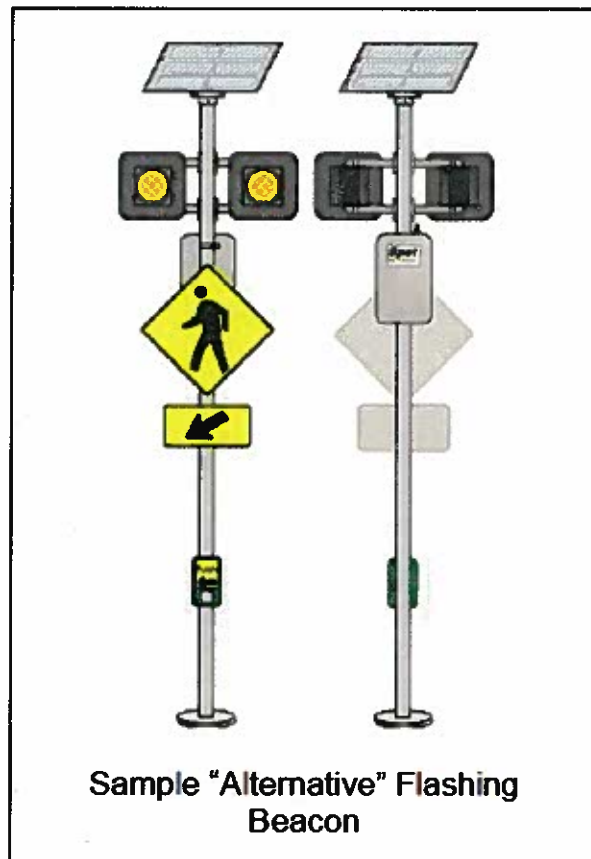
2. ILLUSTRATIONS OF THIS EXPERIMENTAL DEVICE

While the FHWA has issued an interim approval allowing blanket use of the device, the RRFB does not meet the current standards for flashing warning beacons as contained in the 2009 edition of the CA MUTCD, Chapter 4L which requires a warning beacon to be round in shape and either 8 or 12 inches in diameter, to flash at a rate of approximately once per second, and to be located no less than 12 inches outside the nearest edge of the warning sign it supplements. The RRFB uses rectangular-shaped high-intensity LED-based indications, flashes rapidly in a wig-wag "flickering" flash pattern, and is mounted immediately between the crossing sign and the sign's supplemental arrow plaque.

The interim approval was brought before the California Traffic Control Devices Committee (CTCDC) at its September 2008 meeting, agenda item # 08-25. The CTCDC

recommended not adopting the FHWA interim approval in California, instead the Committee encouraged agencies to seek approval from the CTCDC and test multiple devices based on the premise that “if other devices are equally effective, then why limit to a particular shape and size as issued in the interim approval by the FHWA”

In this experiment, we will modify a standard side mounted flashing 8” beacon as defined in the CA MUTCD with high intensity lights and a rapid flash pattern. We will follow the same guidelines as described above when installing the device. An example follows below (graphic created by the City of Santa Monica).



3. SUPPORTING DATA AND HOW THIS DEVICE WAS CHOSEN

The City of Coachella understands the CTCDC’s decision in September 2008, agenda item #08-25 to not adopt the FHWA interim approval, and encourage jurisdictions to try other devices. There are jurisdictions in California, such as the City of Santa Monica,

that are currently experimenting with Circular Rapid Flash Beacons. This experiment will test the efficacy of the side-mounted, LED retrofitted Circular Rapid Flash Beacon to that of the Rectangular Rapid Flash Beacon.

4. CERTIFICATION THAT THE CONCEPT OF THE TRAFFIC CONTROL DEVICE IS NOT PROTECTED BY A PATENT OR COPYRIGHT

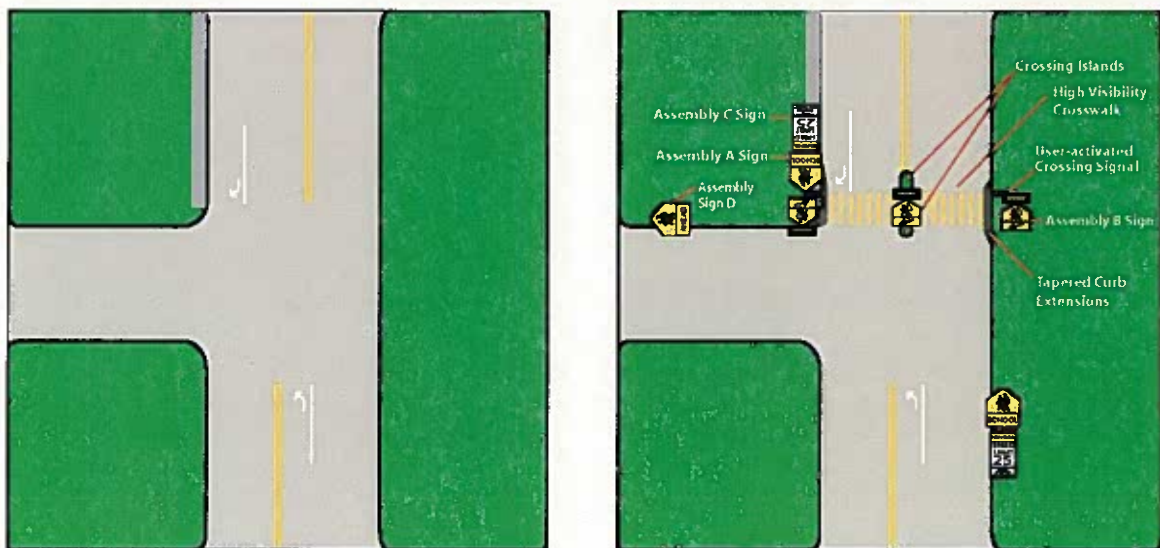
To the best of our knowledge, these traffic control devices are not protected by a patent of copyright.

5. TIME AND LOCATION OF THE EXPERIMENT

The City of Coachella will install RRFBs at two locations in the City: Coral Mt. Elementary School Access Road at Van Buren Street; and Bagdad Avenue at Harrison Street.

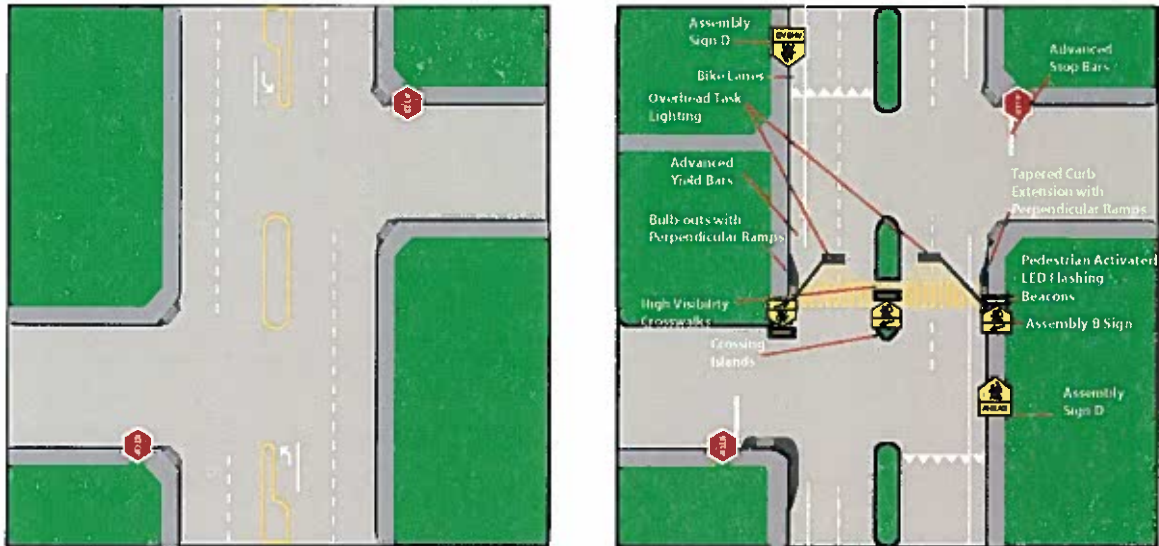
1) Coral Mt. Elementary School Access Road at Van Buren Street

The existing configuration is an unmarked crossing of Van Buren Street, which has 2 lanes and right-turn lane. The City plans to mark the crossing with a continental-style crosswalk and use RRFBs, in addition to pedestrian crossing signs, tapered curb extensions, crossing islands, and speed limit signs.



2) Bagdad Avenue at Harrison Street

The existing configuration is an unmarked crossing of Harrison Street, which has four lanes and an island. The City plans to mark this crossing with a continental-style crosswalk and use RRFBs, in addition to pedestrian crossing signs, overhead lighting, and curb extensions to shorten the crossing distance. A graphic shows the plan below.



This experiment will be conducted for a two-year period: one-year with the use of RRFBs, and the second year with the use of CRFBs at each location. We will start the experiment in the fall of 2011.

6. EVALUATION PLAN

- A) Evaluate existing conditions: Existing conditions at the crossing location will be documented.
- B) Pre-installation evaluation: The City will evaluate the following and record the results in an "existing conditions memo." These variables are those that were collected in the St. Petersburg, Florida example referenced above. The City of Coachella will use the same methodology.
 - a. The number of drivers who yield to pedestrians in crosswalks
 - b. The number of drivers who did not yield to pedestrians in crosswalks
 - c. The percentage of drivers who yielded at <10', 10' to 20', 20' to 30', 30' to 50', 50' to 70', 70' to 100' and > 100'
 - d. The number of cars that passed or attempted to pass a stopped/yielding vehicle

- e. The number of cars that demonstrated a sudden and heavy use of brakes behind a stopped car.
- C) RRFB Experiment: Driver behavior to pedestrian crossing conditions will be measured as described in (B). We will document these conditions 45 days following installation, 90 days, and one year following installation. We will prepare a report documenting the results on a semi-annual basis for FHWA.
- D) CRFB Experiment: Driver behavior to pedestrian crossing conditions will be measured as described in (B). We will document these conditions 45 days following installation, 90 days, and one year following installation. We will prepare a report documenting the results on a semi-annual basis for FHWA.
- E) Evaluation: We will prepare a final Technical Report for submission to FHWA that compares the effectiveness of the Rapid Rectangular Flashing Beacon versus the Circular Rapid Flashing Beacon. The document will include images of the crossing and data collection conditions. It will be rich in graphics, graphs, texts, pictures, and tables summarizing the results.

7. APPLICATION RESTORATION

Within 3 months of completion of this experiment we will restore the site to a condition that complies with the California MUTCD, unless our experiment is successful, at which time the City will apply for this device to become a standard feature of the California MUTCD. If this application is rejected we will restore the site to a condition that complies with the California MUTCD. We will also restore the site to a condition that complies with the California MUTCD if at any time it is determined that significant safety concerns are directly or indirectly attributable to the experimentation.

8. SEMIANNUAL PROGRESS REPORTS

The City agrees to provide semiannual progress reports for the duration of the experiment. We also agree to provide a copy of the final results of the experimentation to the FHWA's Office of Transportation Operations within 3 months following completion of the experimentation.